

# WORKBENCH

35c / July-August / 1964

100

46

## Bedroom Storage Wall



Wagon-Seat Chest

Curved Staircase

All About Wood Bits

Sheraton Sideboard



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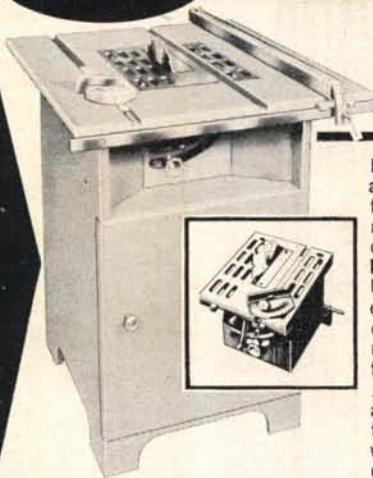
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# WORKBENCH

volume 20 number 4

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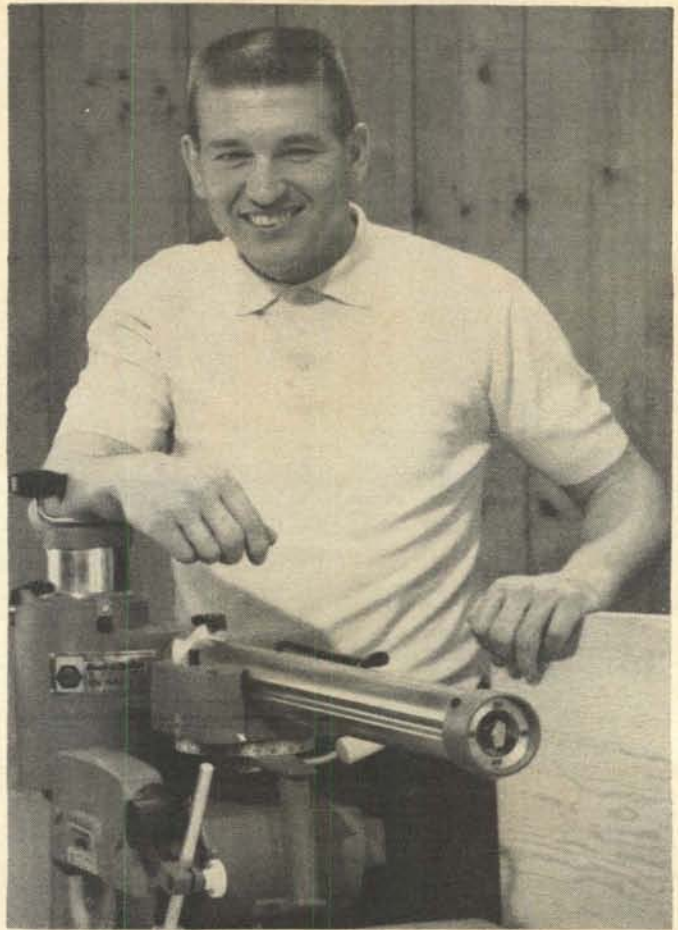
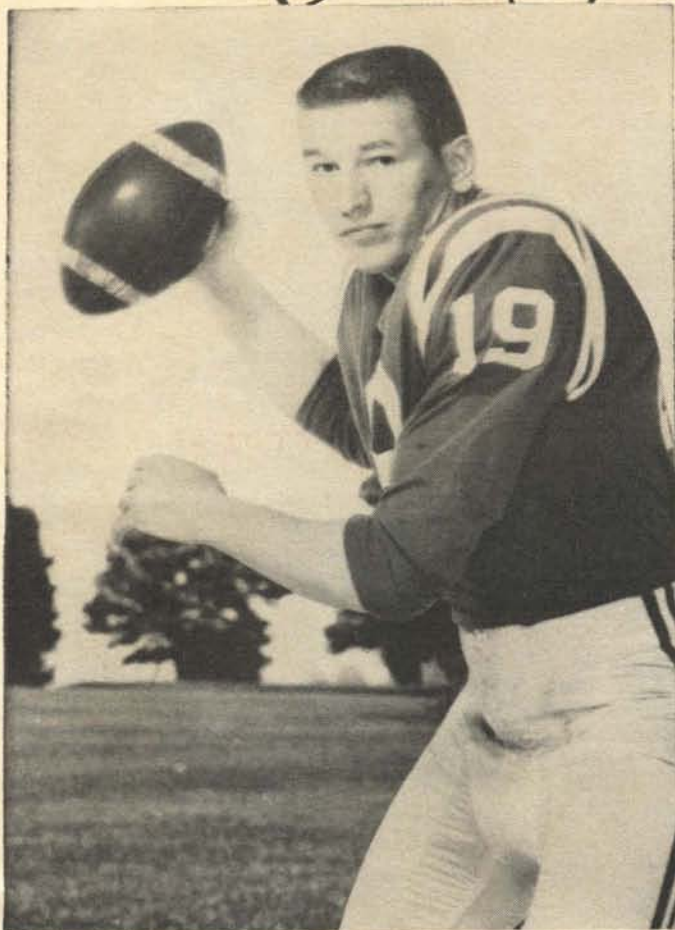


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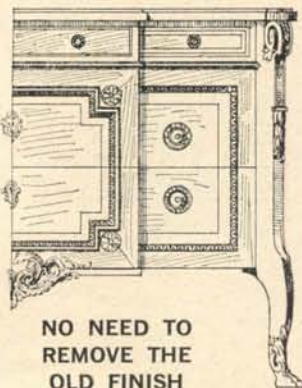
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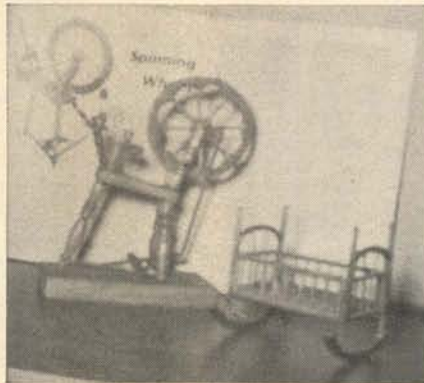
# Letters to the Editor

Dear Mr. Hedden:

Enclosed is a snapshot of a spinning wheel I made from plans in the Jan.-Feb., 1963 WORKBENCH, but done to scale. I carved it entirely with a pocket knife; a tedious job that took about two weeks.

Enjoy every copy of the magazine and won't let anyone throw away a copy.

Joe B. Killian, Cuba, Ala.



Dear Mr. Killian:

A beautiful job of carving. Yours is the first scale model we have heard about, and certainly the only one that was hand carved. Did you also carve the cradle?

Dear Mr. Hedden:

In the Nov.-Dec., 1963 Research Department you told a Vermont reader that installing a damper in an old fireplace would be difficult and expensive. I must disagree, as our house is 300 years old, and we have had dampers put in two fireplaces, by two different masons. The job was not too messy, and was done in less than eight hours. The fireplaces were shallow, so the damper were installed first, then a new front of brick was applied. The fireplaces work well and do not smoke. One of the jobs was done 30 years ago, the other about 25 years ago. The cost then, with damper, was less than 75 dollars for each job.

M. F. Loring, Rhode Island.

Dear Mr. Loring:

It is quite possible that some fireplaces could be fitted as you describe, but there are a couple of problems. First, not all the old fireplaces are built the same, and second, the cost of labor has skyrocketed in the years since you had the dampers installed. A cost of several hundred dollars would have to be balanced against the convenience of the damper, and the price of a simple screen in front of the fireplace to stop drafts.

Dear Mr. Hedden:

Note that several tips have been given on various ways to prevent damage to a wooden surface when trimming dowels. I use a drill gauge, a thin metal plate in which are punched holes ranging in diameter from ¼ to ½ in. I keep the finish face of the gauge down; thus the saw blade does not damage the wooden surface, nor mar the leg-ends on the gauge.

M. Bonneville, Norfolk, Va.

Dear Mr. Bonneville:

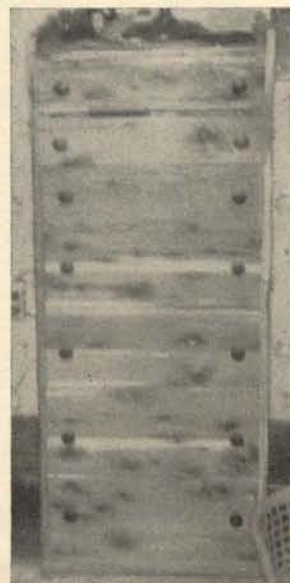
Thank you for the tip. We are somewhat amazed by the number of variations that readers have given us on how to prevent damaging a wooden surface when flush-trimming the ends of dowels. We do know we have an ingenious group of craftsmen as readers. Again, thanks to all who have sent ideas. And, let's send more.

Dear Mr. Hedden:

Writing to tell you how much I enjoy WORKBENCH. Am enclosing a snapshot of the Slim-Jim Chest I made from plans in the Jan.-Feb., 1962 issue. Chest is made of red cedar and stands 52 in. high.

Would like to see more lathe projects in the magazine; I'm a senior in high school and our shop just received a lathe.

Danny L. Scott, Zanesville, Ohio.



Dear Mr. Scott:

Nice job on the chest; it is unusual to see red cedar used in this manner for furniture.

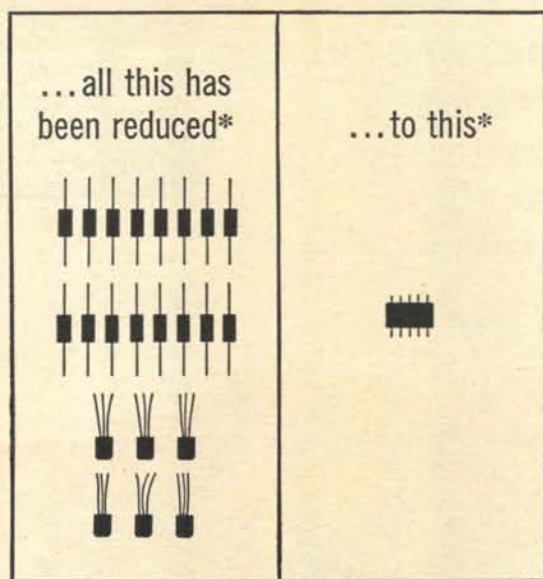
We would publish more lathe articles but our writers have not been sending any. Any of you readers have some lathe projects, send them along.



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**MASTERCRAFT PLANS, Dept. 75B  
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Dear Mr. Hedden:

Enjoy reading WORKBENCH, find it has very interesting projects. Note you have published pictures of quite a few grandfather clocks made by readers, so am sending a photo of one I made. It is my own design, and is made of solid walnut finished with Danish oil. The movement is from Mason and Sullivan.

Ralph Benson, Benson, N. C.



Dear Mr. Benson:

A most attractive design; the classic slender waist is retained, but your individual touch is certainly apparent. The use of solid stock also is unusual, as most clocks today are built with hardwood plywood. Our congratulations on a truly beautiful clock.

Dear Mr. Hedden:

Hope someone on your staff, or a reader, can recommend a satisfactory adhesive for cementing abrasive disks to a 12-in. aluminum sanding disk. I have had the sander some years, and have never found an adhesive that is convenient, ready to use and which permits easy removal of the sanding disk when it is worn. Most adhesives require clamping the disk overnight to make sure it adheres properly. Removing the disk requires soaking and scraping. Several of my craftsmen friends tell me they have the same problems. I have used rubber cement, gasket compound, white glue and all kinds of stick-type adhesives. I tried heat, applied clamps and used every trick I know. Too often the adhesive disk "bubbles" up and falls off.

The best dope I have used was a red-colored, odorless paste sold by Sears. Our local store, however, is out of it, and they do not seem anxious to restock it. This stuff really sticks, but does require soaking for about 12 hrs. Also, the paste dries up in the bottle in a short time and becomes useless.

Hope someone can suggest a good adhesive.

Robert Sillick, Burlington, Iowa.

Dear Mr. Sillick:

Must confess we have had much the same experience. Any of you readers have any suggestions? If any manufacturers read this letter; we would be glad to test their product.

Dear Mr. Hedden:

Have made model ships, etc. from detailed plans, now am looking for plans to make a model stage coach or covered wagon. Do you have such plans?

J. M. Clark, Chillicothe, Ohio.

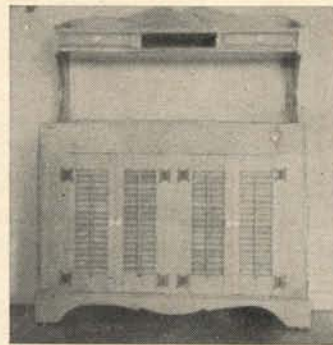
Dear Mr. Clark:

We recently have received a number of such requests and are asking our contributors to send us such an article. Will publish it as soon as we can. In the meantime, suggest you write to Walters Hobby Shop, 207 French Rd., Utica, New York. They have a good selection of unusual models.

Dear Mr. Hedden:

Enclosed are a couple of snapshots of the Colonial Water Bench my husband built from plans in the July-August, 1963 issue. We decided to leave out the center drawer at the top. We applied cherry stain to the pine so it is the exact color of the photo on the cover. I enjoy WORKBENCH as much as my husband. We plan to build a wash stand next; do you have the plans?

Mrs. J. W. Moore, Lafayette, La.



Dear Mrs. Moore:

Your husband has done a beautiful job in reproducing the Water Bench. We are somewhat curious as to what you will store in the small opening left by omitting the drawer. We do not, at the moment, have plans for a wash stand, but no doubt will have them in the future.

*Jay W. Hedden*



# NEW LUMBER STANDARDS

What do the proposed new lumber standards mean to you as a home owner and as a craftsman? (It is possible by the time this article is published that the standards will have been accepted and will be in force.) Simply stated, the standards mean you will be able to buy dimensioned lumber at lower cost, that it will be stronger and more dimensionally stable, and that there will be much less of a problem in new homes because of popping nails and cracked plaster.

The new standards state that 2-in. dry lumber will be dimensioned at 1½ in. in thickness, but there will be no change in width. By "dry" lumber is meant wood having a moisture content averaging 15 per cent, with a maximum of 19 per cent. All 2-in. lumber now is dimensioned at the mills at a thickness of 1⅝ in. whether green or dry. The green lumber usually dries and stabilizes in place to a thickness of about 1-9/16 in. This shrinkage is what causes nail popping in plaster walls, and warping and twisting of studs and joists. If the lumber is dried before it is installed it will not shrink,

and all the resultant problems will be eliminated. Green lumber will be dimensioned at the mills at slightly less than 1⅝ in., so it will stabilize at 1½ in. when dry. Because dry lumber is lighter and smaller, more can be shipped for the same cost; this means a lower cost to the retailer, and to the ultimate user. The builder and craftsman also knows that when he buys the new standard 1½-in. lumber, that all pieces of the lumber will be of that dimension. In the present situation both dry and green lumber are shipped at the same dimension; the buyer never is sure what the actual thickness of the material is, and can have problems when using lumber of varying thickness in a single construction project.

The problem started during World War II, when the shortage of lumber forced mills to ship both green and dried lumber together. Before that time such agencies as the FHA required that only dried lumber be used in houses for which they insured a loan. In theory this requirement still remains; in practice it is

extremely difficult to enforce.

Tests over the years have proved that dry lumber 1½ in. thick is stronger than green lumber 1⅝ in. thick. (For example, none of the houses built with 1⅝ green lumber that later dried to 1-9/16 in. have fallen down.) And, because the width of the lumber is not to be changed, there is no need to change specifications as regards allowable spans for floors, ceilings and the like. Another example: Two 2 x 4s side by side are twice as strong as one 2 x 4, but a 2 x 8 is almost four times as strong as one 2 x 4. The difference in the strengths is a result of the extra width.

Wood can have a moisture content as high as 250 per cent, as when logs are floated to a saw mill. "Free water" in the cell cavities of the wood evaporates until the wood has about 30 per cent moisture content. At this point "absorbed water" in the cell walls begins to evaporate. Down to the 30 per cent condition there would be no change in the dimension of the wood. From 30 per cent down, shrinkage begins, and strength increases. △ △

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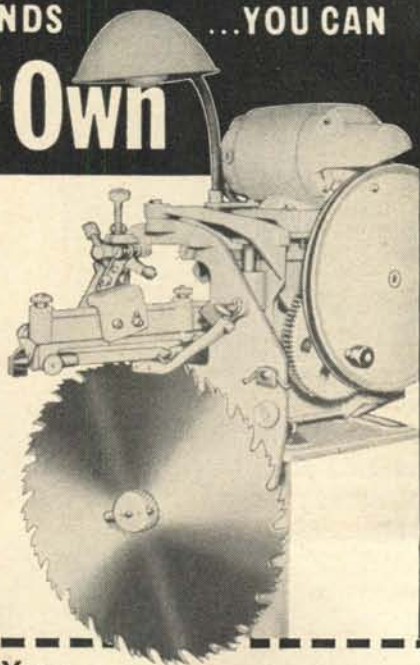
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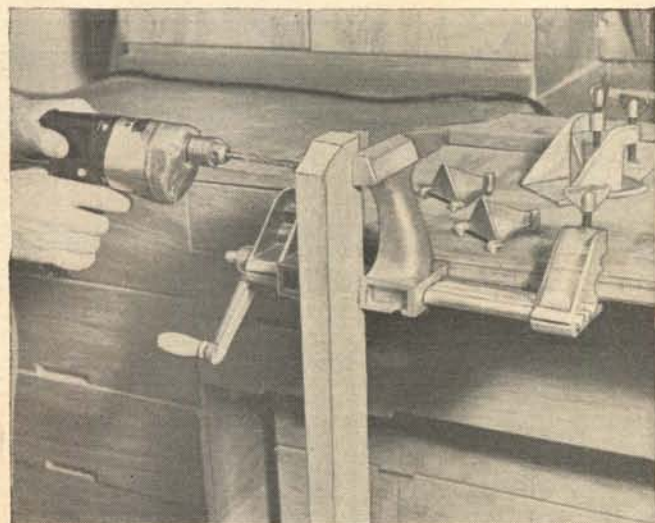
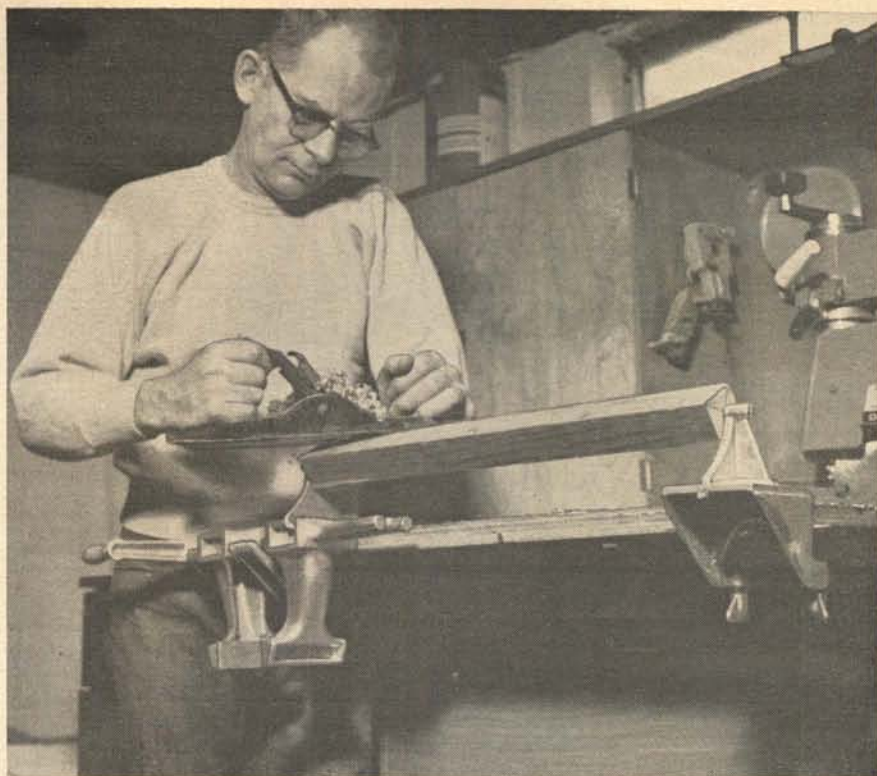
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ran our tests with the vise clamped to the edge of the table of a radial-arm saw.

The vise can be set up so there is a full 8-in. span between the jaws, it can be positioned so the tightening clamp is at either the right or left end of a bench, and the jaws can be located up or down.



Parallel upper and lower jaw surfaces provide a rigid grip for work that requires being held very tightly; plastic inserts for the jaws



Base-relief carving for piece of furniture is held securely with vise used as large C-clamp positioned vertically.



With one wedge-clamp inside jaws, full 8-in. span between jaws permits holding work too wide for machinist's vise.

permit holding very fragile items as well.

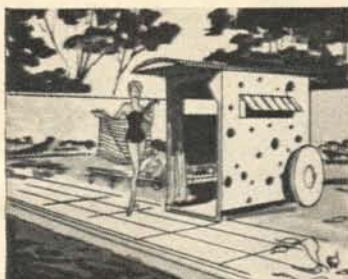
Auxiliary clamps that fit in the bases of the wedge-clamps permit holding a long piece of stock for planing to the round, or otherwise shaping it. Odd shapes and sizes can be held by the vise when it is used as a large C-clamp.

Despite its versatility and ruggedness, the Little Wonder is ex-

tremely light in weight, and is compact enough to be stored in a small space. It would be fine to take along in the tool box when working in the field away from a workbench. If your local tool dealer does not handle the vise, send directly to Little Wonder Inc., 1028 Street Rd., Southampton, Pa. Cost is \$15.95 ppd.  $\Delta \Delta$



Parallel upper and lower jaws provide very strong grip on larger and longer stock that is to be worked.



11. Roll-away cabana



29. Chuck wagon



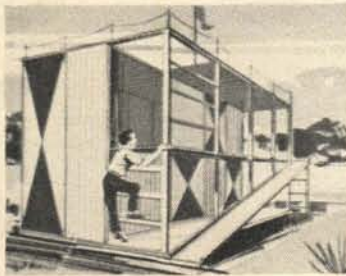
38. Table tennis table



56. Residential awnings



58. Garden center



64. Outdoor playhouse

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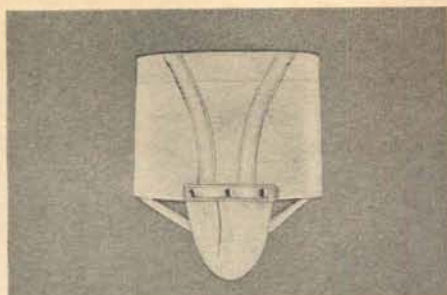
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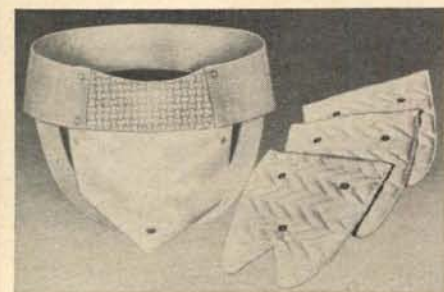
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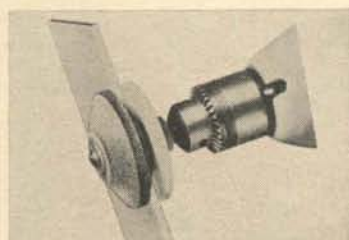
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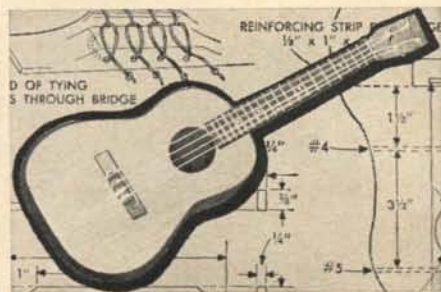


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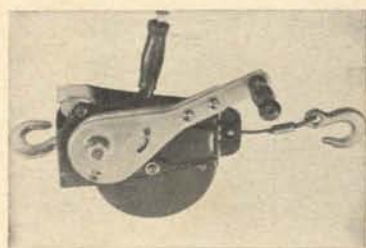


## Make Your Own Music

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# Showcase



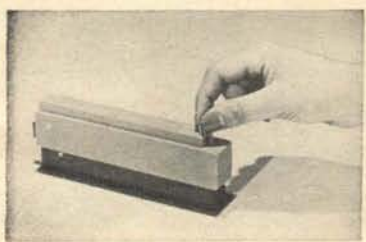
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**PAPER-CLIP DISPENSER** hands you one clip at a time ready for use, eliminates irritating struggle with tangled, joined-together clips. Handy dispenser loads in just moments with special cartridges containing 100 clips. Ideal for home and office use, clip dispenser measures about 7 in. long, is molded of sturdy two-tone gray plastic. Priced at \$4.95 from Bancroft's, Dept. 44-144, 251 E. Fifth St., St. Paul, Minn., 55101.



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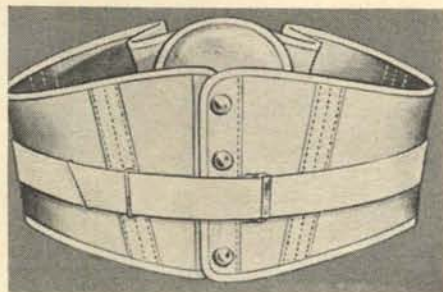
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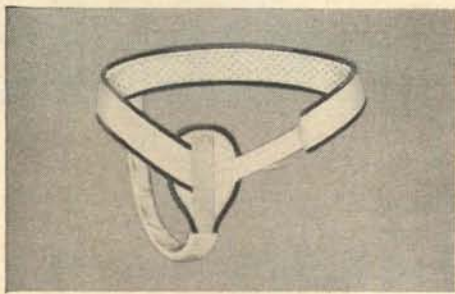
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# BEDROOM STORAGE WALL

When considering a room modernization project in an old house, the first step is to do some careful planning. Analyze the strengths and weaknesses of the room, decide what you would like to do—and if it can be done—then figure the best way to accomplish the job. First, plan to have the modernization good for a number of years. Second, design a unique—not flashy or extreme—decor. Third, include “convenience” features.

The large bedroom shown and

described in this article had plenty of space, but no storage. The room did have potential, and careful planning transformed it into a beautiful room, as shown on our cover and in the lead photo.

Because of the generous size of this room, one entire 14-ft. wall was remodeled into two 7-ft. walk-in closets with floor-to-ceiling doors. The facing wall, however, presented a problem. As is often the case in older homes, there were soil pipes and plumbing projecting into the

room. This definite “negative” factor was transformed into a “plus” factor by careful planning.

A wall of 2 x 4 studs was built out from the wall to conceal the pipes. The “false” wall then was used to frame in five additional storage compartments as well as a built-in intercom system. The old wall was fitted with furring strips on which perforated hardboard was nailed. The furring permitted the use of Peg Board hooks and other fasteners in the perforations. Shelf



Wallboard on outside walls was replaced with new plasterboard, all floor and ceiling trim was removed.

brackets also could be moved to space the shelves as desired. Doors for the storage compartments were made by attaching panels of plastic-finished hardboard to 1 x 4 frames. The doors were faced with Swiss walnut woodgrain panels, as used on all the main walls. When closed, the doors fit flush and the wall has an unbroken appearance. Touch latches, (push to open, push to close), were used, as no projecting knobs or pulls are required.

The finished wall actually has three sections. From the floor up 3 ft., the wall consists of paneling over studs. The five storage compartments, two above each bed and one between them, are 3½ ft. high. The top section, also paneling over studs, is 14 in. high. The moldings account for the remaining height in the 8-ft. wall. In your own planning you might want cabinets in the lower section of the wall, and in the upper section. The latter would be for "dead" storage, as it would require a stepladder to reach these cabinets.

The wall on which the storage cabinets were built was left intact,



as it was covered with furring strips and perforated paneling, however the other walls in the room were in such poor condition that the plaster was removed down to the bare studs. Inexpensive plasterboard was nailed to the studs to serve as a backing for plastic-finished Marlite woodgrain planks. The planks are 16 in. wide and 8 ft. high. They are tempered hardboard ¼ in. thick, over which is applied the plastic finish. They can be cleaned with a damp cloth; even stains, handprints and crayon marks can be removed without damage.

To install the planks, a temporary 1 x 2 starter strip was nailed to the studs at the bottom of the wall. This strip was removed after the planks were in place, and replaced by a base molding. The tongue edge of the first plank, which went into a corner, was trimmed to make a smooth fit. It was plumbed, then the edge was cut to fit against the

Plastic-finished hardboard planks are tongue-and-grooved for easy application; metal clips simplify spacing.





**16-in. by 8-ft. planks of paneling were attached with adhesive. Paneling needs no finishing after installation.**



corner. (Very seldom will you find the corner of a room plumb or square.)

Incidentally, when ripping or crosscutting Marlite panels on a table saw, keep the finish side up. Keep the finish side up when crosscutting with a radial-arm saw, but keep it down when ripping.

Special adhesive was used to apply the planks, being applied with a notched spreader to assure uniformity. For best results, the adhesive was applied to both the planks and the wall. The planks are cut so there is  $\frac{1}{4}$  in. at the ceiling to allow for expansion. Allow  $\frac{1}{16}$  in. space in the joints between the planks also. Simple metal clips, spaced 16 in. apart on the tongue edge of the planks assures a good bond and helps the spacing. After the paneling is installed you can apply matching corner, base and ceiling moldings.

To modernize the two windows in the room, all trim was removed and the paneling brought flush with the windows. The edges were capped with corner molding.

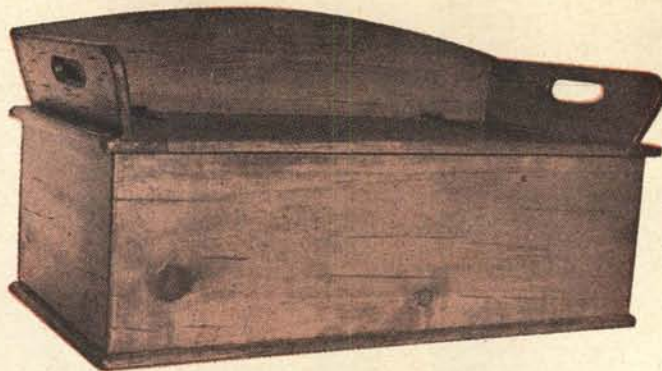
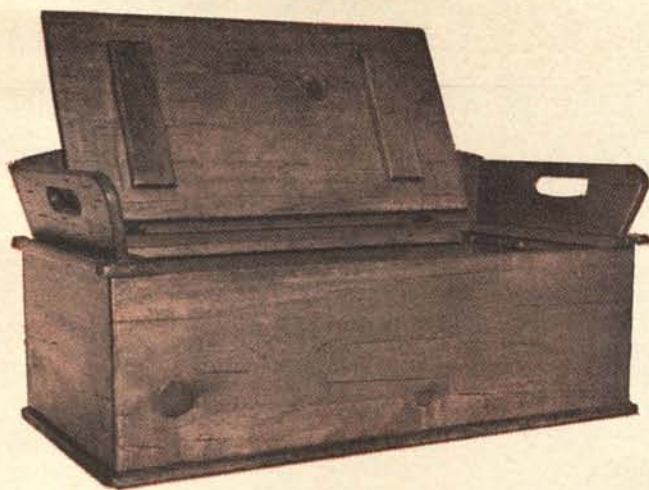
Both side walls also were covered with woodgrain planks. The small area on each end of the false wall was furred out and covered with perforated woodgrain panels of the same plastic-finished hardboard.

Easy maintenance extends to the ceiling on which washable Marlite ceiling tile was used. These tiles 16 in. square have the same plastic finish as the wall planks. Plan the ceiling so you have the minimum number of tiles to cut. Start from two walls with full tiles, so you need cut only to fit against two walls. With the ceiling done, the floor was next. It first was covered with hardboard underlayment, then a vinyl-asbestos floor was installed.

If the ladies wonder about the masculine "Camelot" decor: The tailored green canopies are hung







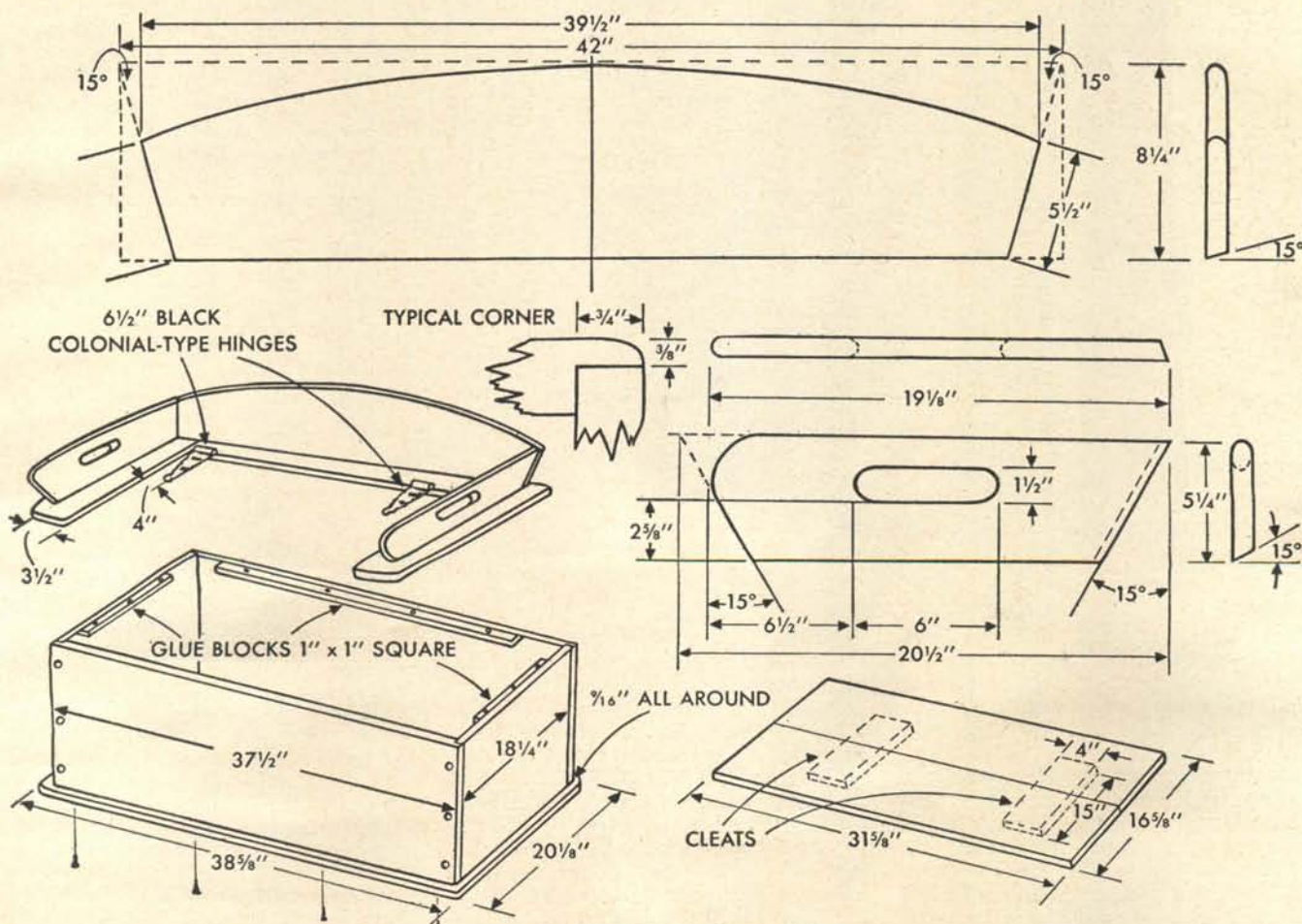
# Wagon-Seat Storage Bench

W. Scott McLennan

Definitely Early American, but unique and practical with its storage compartment is this copy of a wagon seat. No. 2 common, or better, white pine 1 x 12s are used to build the seat. The width of the 1 x 12s, plus top and bottom, determine the height of the seat. The

bottom of the seat, and the hinged lid, require two boards to be cleated together. A rabbet is cut in each end of the back and front to accept the ends, and the finished joint then is rounded. Glue blocks 1 in. square are fitted inside the seat at top and bottom to help attach the bottom and the "flange" around the lid. Use white glue and No. 10 flathead screws 1½ in. long for the assembly. Counterbore all holes and fill them with wood plugs. A device such as the Circle-Sink plug cutter can be used to make the plugs from the same pine used for the seat. When making the back that fits on top of the seat, use a piece of ¼-in. stock and three nails to form the curve, simply tracing it with a pencil. The back and sides meet at 15 deg., requiring a compound miter. Set the miter gauge of a table saw at 75 deg. and tilt the blade to 3¾ deg. to cut these two compound miters.

After the seat is assembled, sand it smooth, then nick and scratch it to give it a "distressed" look, finally apply stain and a flat, clear finish such as Deft. △ △





# BEDROOM CHEST for a man



From Don Cartner Associates here is the first item in the bedroom set in the WORKBENCH Contemporary Collection. A companion piece for the distaff side will be shown in a future issue.

While the drawings show the top, bottom and side panels to be glued-up from solid stock,  $\frac{3}{4}$ -in. hardwood plywood can be used instead; this will eliminate cutting the tongues and grooves. The back panel of the chest is  $\frac{1}{4}$ -in. plywood or hardboard

in either case. The front face of the shirt bins also can be hardwood plywood.

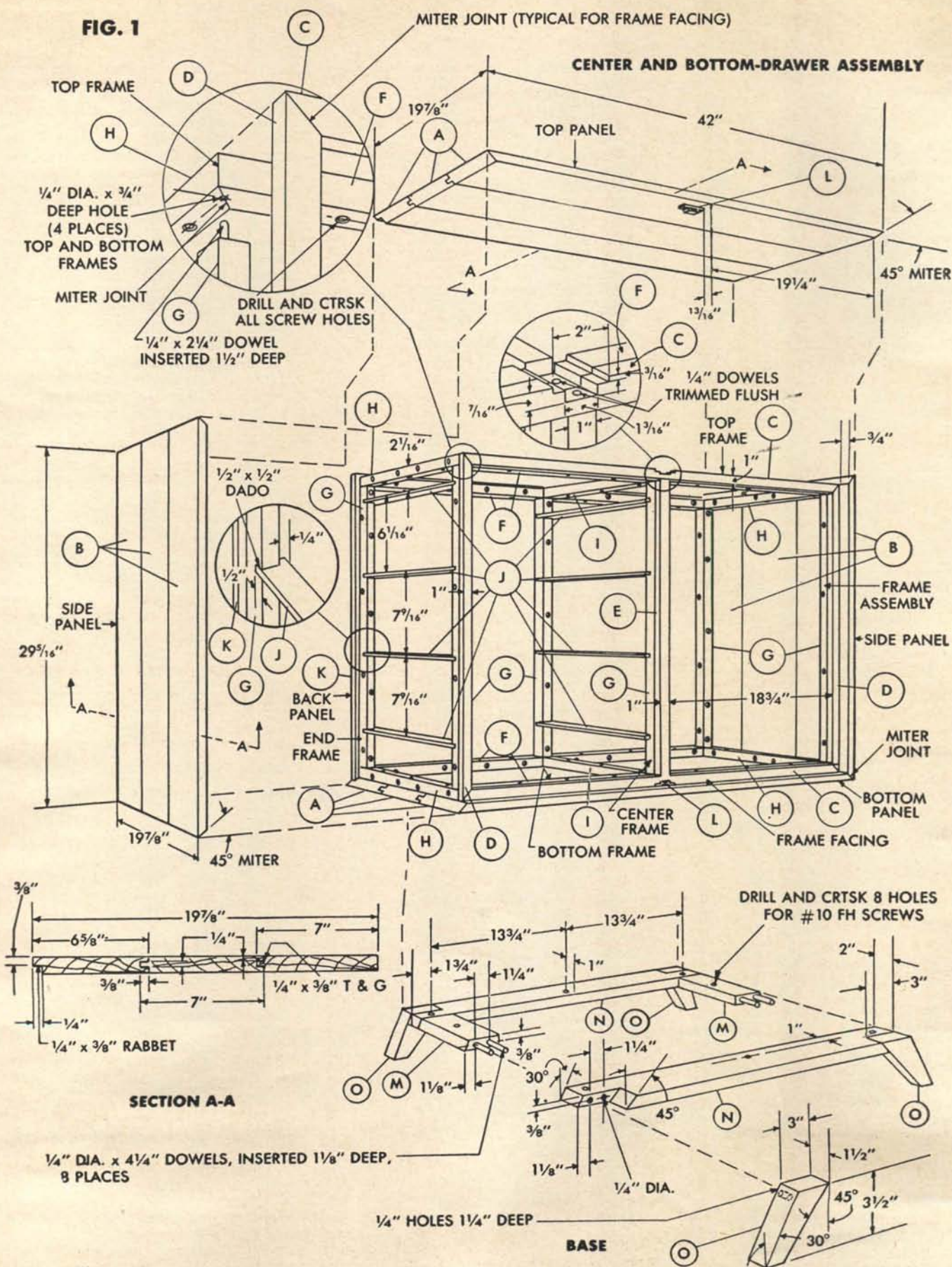
To start construction, cut the top, bottom and side panels to size, then cut 45-deg. miters on the ends as indicated in Fig. 1. To make the top and bottom frames, notch the two F parts as shown in the circle in Fig. 1, to clear the magnetic latches. Drill and countersink 6 holes in the upper and lower frames for No. 10 flathead screws. Make

all countersinks from the inside surfaces of the frames. Drill and countersink holes for screws in all F, H and I parts. Cut a 45-deg. miter on each end of all F and H parts. Place F, H and I parts in position on a flat surface. I parts are butted to F parts on the center of the frame. Apply glue to all joints, square up and clamp until glue is set.

To assemble end and center frames, cut  $\frac{1}{2} \times \frac{1}{2}$ -in. dadoes in



**FIG. 1**









Attach the frame facing to the frame with glue and No. 10 flathead screws  $1\frac{1}{2}$  in. long. Wipe off excess glue. Attach top, bottom and side panels with glue and No. 10 flat-head screws  $1\frac{1}{2}$  in. long. All screws, of course are driven through the frame members into the panels. Cut the back panel to shape and attach it with No. 10 roundhead screws  $1\frac{1}{4}$  in. long. Use a flat steel washer,  $\frac{1}{4}$  in. I.D. under the head of each screw to keep them from piercing the veneer of the back panel. Glue and insert remaining J parts at this time in end and center frames. Seal and varnish all interior surfaces of top, bottom and side panels.

Not every man will want two shirt bins, so we suggest that the bottom bin be replaced with two drawers. Duplicate the two lower drawers on the lefthand side of the chest. Modify the materials list before you start construction, to eliminate the chance for errors if you do replace one shirt bin with drawers.

Attach H parts to I with glue and screws. Attach L to G with glue and screws. Attach H-I assembly to F with glue and screws and to G. Edge-glue the end of K and insert it in the dado in F. Edge-glue bottom edges, upper righthand corners and lower righthand corners of all W parts and position. Apply glue to J, L and the kerfs. Bend K to shape and clamp to L. While clamped attach K to L with six No. 10 flathead screws 1 in. long.

Make all drawer parts, Fig. 2 and assemble the drawers. Use glue and No. 8 flathead screws 1 in. long for assembly. Clamp and square up until glue has set.

Attach door and bin hinges to chest. Hang door and bins so they close flush with face of chest. Door and bins should fit with  $1/16$  in. clearance top and bottom,  $1/8$  in. at the vertical center.  $\triangle \triangle$





# SHERATON SIDEBOARD



## LESTER MARGON

We bring you this magnificent Sheraton-style sideboard through the courtesy of the Curator of Decorative Arts of the M. H. De Young Memorial Museum, located in Golden Gate Park in the city of San Francisco, California.

While there is some question as to whether Thomas Sheraton, (1751-1806), ever had a woodworking shop in England, with the publication of his "Cabinet Maker and Upholsterer's Drawing Book," (1791-1794), he was included in the first ranks of English furniture designers. His influence became tremendous and his styles found ready and enthusiastic acceptance throughout Europe and the American Colonies. So much so

that in every decoration center in the Colonies they produced their own interpretation of his new style. Thus we find many examples of the Sheraton style, varying in some degree, in New York, Boston, Salem, Philadelphia and Baltimore. It was at this time also that the sideboard became important as part of the dining-room furniture.

The leg turnings are the only really difficult part of this sideboard. The corner legs must be notched to fit, while those at the center have one side cut flat and grooved to accept the partitions. The original sideboard is solid mahogany, but veneer is used on the doors and drawers. Note that the

various veneers of crotch mahogany have not been matched, but each has been selected to give the richest possible effect. The inlays around the doors and drawers can be duplicated with ready-made banding, and a slight variation of the design will not change the over-all appearance of the sideboard. For modern construction we would suggest hardwood-faced plywood. The individual builder would still have the problem of selecting those sections of veneer that would look the best on the various doors and drawers.

The hardware on this sideboard is part of the over-all design, and we recommend that you choose hardware of similar style.  $\Delta \Delta$









1. On jack loom, all harnesses are raised by treading. To weave, you depress a treadle, "throw" the shuttle.

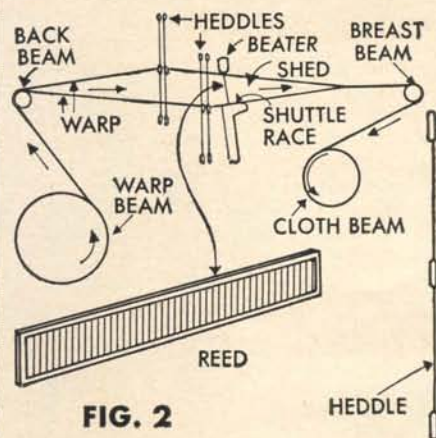


FIG. 2

# FOUR-HARNESS JACK LOOM

ENNO R. HAAN

## PART I

You can weave all kinds of fabric, lace and rugs up to 45 in. wide with this loom, Fig. 1, and produce an endless variety of attractive designs. Hand-woven articles are always in demand and you can make spare-time profits with this interesting hobby.

Fig. 2 shows parts of a loom and the terminology. When a loom is set up for weaving, a number of parallel cords or threads called "warp" are stretched between the

back beam and the breast beam, Fig. 5. The warp is wound on the warp beam first, Fig. 3. Then it is brought over the back beam, through heddles held in the harnesses, through the reed, (a comb-like guide on the beater to keep the warp evenly spaced), and then to a canvas apron attached to the cloth beam.

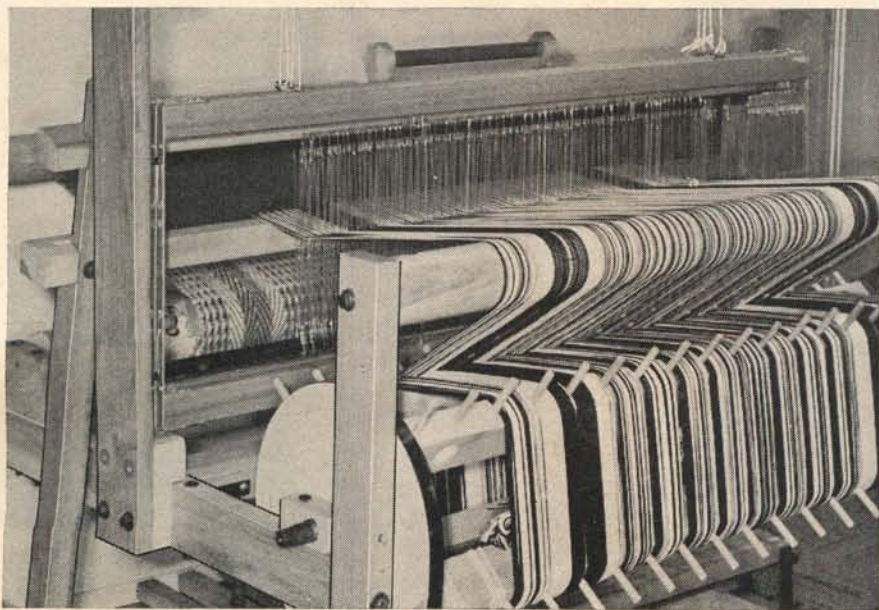
In weaving, you depress a treadle, Fig. 7, to separate some of the warp, thus forming a space or

"shed" through which a shuttle is passed or "thrown". The shuttle introduces the cross threads or "weft". With the shed still open, you pull the beater forward to force the last strand of weft tightly against previously woven fabric. Then you depress another treadle to separate another combination of warp threads, and you return the shuttle through the shed in the opposite direction, and again pull the beater forward. The same operations are repeated using other treadles.

As fabric is woven you wind it on the cloth beam after releasing the brake on the warp beam. This unwinds a length of warp equal to that of the fabric wound on the cloth beam. When the brake is again set, tautness of the warp is maintained by a ratchet wheel and pawl on the cloth beam.

Generally preferred by most weavers, a jack loom offers a much greater variety of pattern possibilities than a counterbalanced loom. This is because the harnesses of a jack loom can be raised singly or in multiple whereas those of a counterbalanced loom work in pairs. A four-harness jack loom has fourteen different treadle tie-ups, while a four-harness counterbalanced loom has only six.

3. Rear view of loom shows enough thread on warp beam to weave ten 54-in.-long rugs. Warp beam rotates.

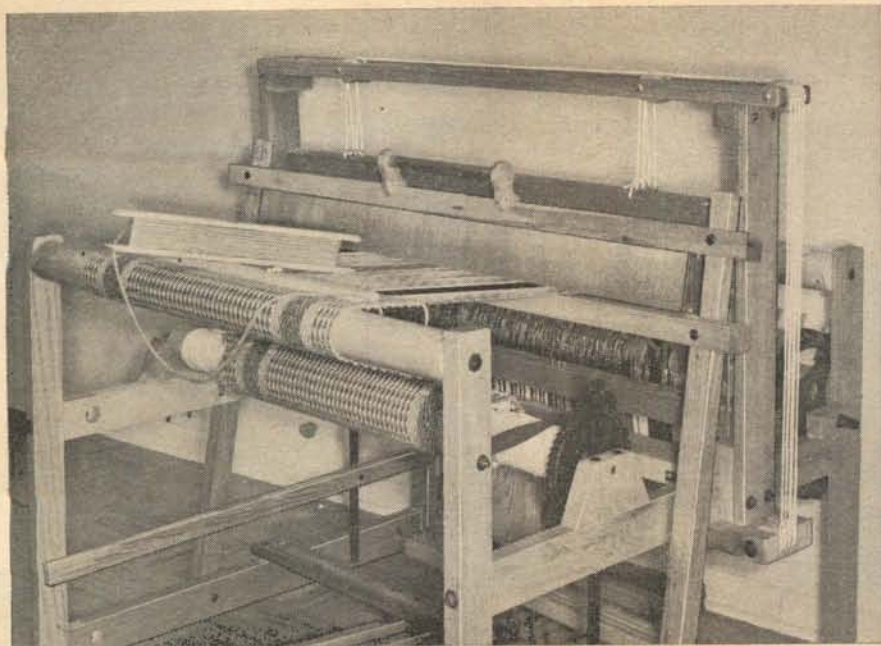




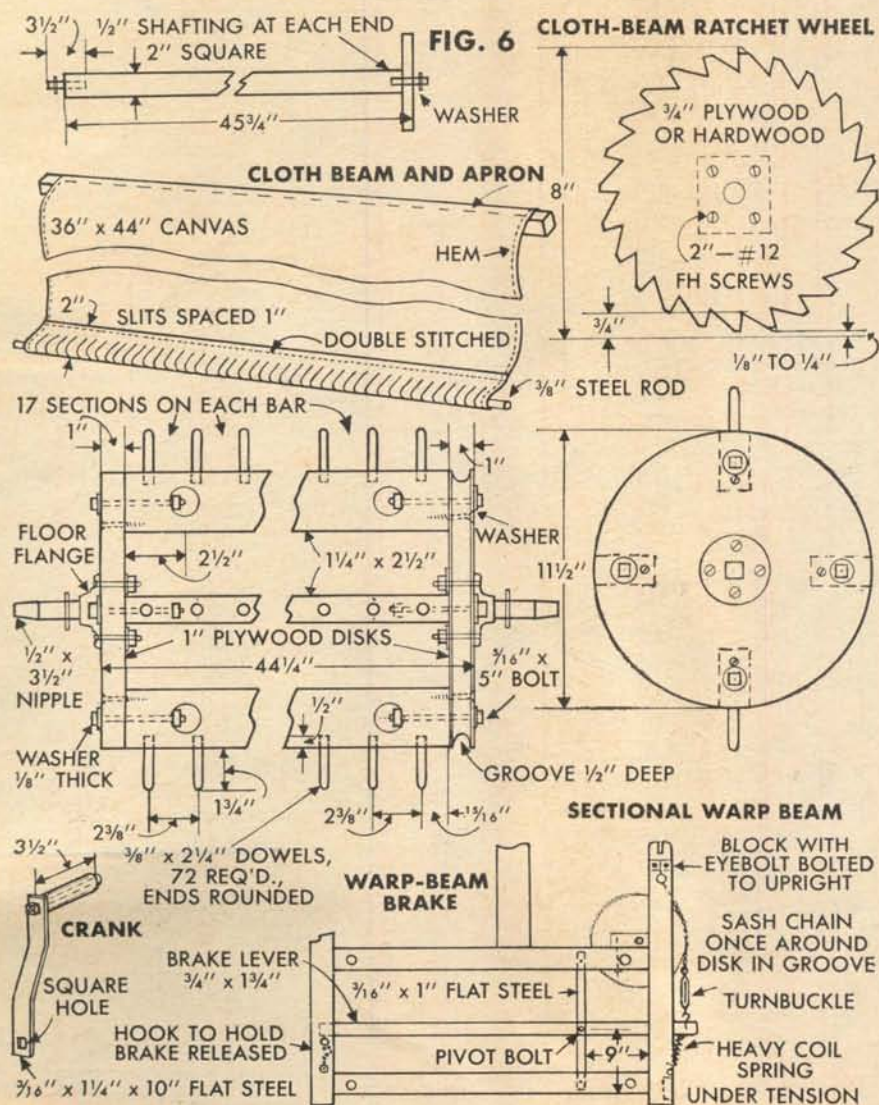
The beater pivots on the two lower side rails. Each leg is slotted at the end as in the right lower detail, Fig. 4, to permit quick removal when threading. An easily re-







5. Front view shows woven portion of rug over breast beam, partly wound on cloth beam. Beater carrying reed rests against center uprights.



movable nail, which is slipped through a hole under the pivot, keeps the legs from coming off. A metal sleeve over the threaded part of the bolt prevents excessive wear on the wood.

The cross members of the beater are grooved to hold a reed from about 5 to 6 in. wide. The upper cross member is movable up and down, the bolts riding in vertical slots. Wingnuts can be used on these bolts, but the bolts of the lower cross member are tightened with a wrench. The upper cross member has a handle at its center with which the beater is pulled forward. Both cross members are notched similarly at the ends to straddle the legs and hold the assembly rigid. The lower cross member is wide to form a shuttle race under the warp to take the weight of the shuttles as they are being passed through the shed.

The center details of Fig. 6 show construction of the warp beam. Four cross bars, drilled for dowels before assembling, are bolted to plywood or hardwood disks turned to true circles. To prevent the bars from turning out of position, a wood screw is driven into the ends of each one. Two pipe nipples extend from floor flanges, (both 1/2-in. pipe), which are bolted centrally to the outside of the disks. The nipples turn in blocks bolted to the upper side rails at the rear corner posts as in Fig. 4. Ends of the nipples are hammered square and filed to a slight taper to fit a crank, detailed in Fig. 6. The crank is used to wind warp on the warp beam. The right disk of the warp beam is grooved for a sash-chain brake installed as shown in the lower detail, Fig. 6.

The treadles, Fig. 8, pivot on a shaft held by two wooden blocks bolted to the rear cross rail. Use wooden spacers between the treadles to spread them uniformly. To space the front ends of the treadles the desired 3 1/4 in. on centers, you install a cross piece having six 40d spikes, altered as shown, projecting down through holes in the treadles. To prevent the spikes from binding, the holes are widened at the top and bottom. Each treadle has four screw hooks at the locations shown for connection with turnbuckles to the four lams extending across the treadles. Use heavy steel screw hooks that will not easily bend, and drive them into pilot holes so the hooks will come close to the wood.

The lams pivot on a bolt held by two steel brackets screwed to the lower right side rail directly under the lower center cross member. They then will line up with the small levers held between two wooden plates that are screwed to the cross member. Each lamm has four screw hooks projecting down



7. Six treadles, uniformly spaced by "spiked" guide transfers  $1\frac{1}{2}$ -in. downward pull through four lamms.

for connection to the treadles, and a single screw hook projecting upward for connection to a lever above. Be sure to get all these parts in perfect alignment.

The perspective drawing shows only a single turnbuckle between a treadle and lamm, and one between a lamm and lever. Actually, each treadle connects to two lamms as shown in the tie-up detail, upper left Fig. 8. In Fig. 7 long, slender bolts are shown as these were used instead of turnbuckles, each bolt having two nuts to lock adjustment.

The levers pivot on a  $\frac{1}{2}$ -in. bolt. Their purpose is to transform a vertical movement of approximately  $1\frac{1}{2}$  in. to a horizontal movement of about  $5\frac{1}{2}$  in., the distance the harnesses need to be raised. The turnbuckles make it easy to adjust the linkage so there is an equal pull on the harnesses. A nut on each turnbuckle locks the adjustment. If there is any tendency for the turnbuckles to come off the screw hooks, bend the hooks to make the opening smaller. Place washers between all the levers. A length of dowel glued in holes drilled in the plates, provides a stop to hold the levers in alignment when you tie them to the harnesses.

You make four harnesses, as in Fig. 8, or you can purchase ready-made harnesses. Make them of cedar or redwood. Blind holes in the ends, Fig. 8, permit two thin steel heddle supports to be sprung into them. Heddle supports of this length require a couple of hooks to keep them from bowing when subjected to the pull of taut warp.

Each harness is tied to a corresponding lever with traverse curtain-rod cord. When tying, hold the harnesses down firmly with a block wedged between them and the upper cross member. Use a block similarly to hold the lamms up so that the levers will rest against the stop dowel. The lamms then should be horizontal with the treadles hanging on them so that the front ends of the treadles come about 5 in. above the floor. From back to front the treadles then will slope upwards. Tie one end of the cord to the left screw eye of the harness, run the cord over the pulleys and loop it over the screw hook on the corresponding lever, then return over pulleys to the right screw eye of the harness, tying the cord here so it is taut.

Part II will cover the heddles, shuttles, a warp-spool rack, a loom bench, and will explain how to thread the loom and start weaving.

(To be Continued)

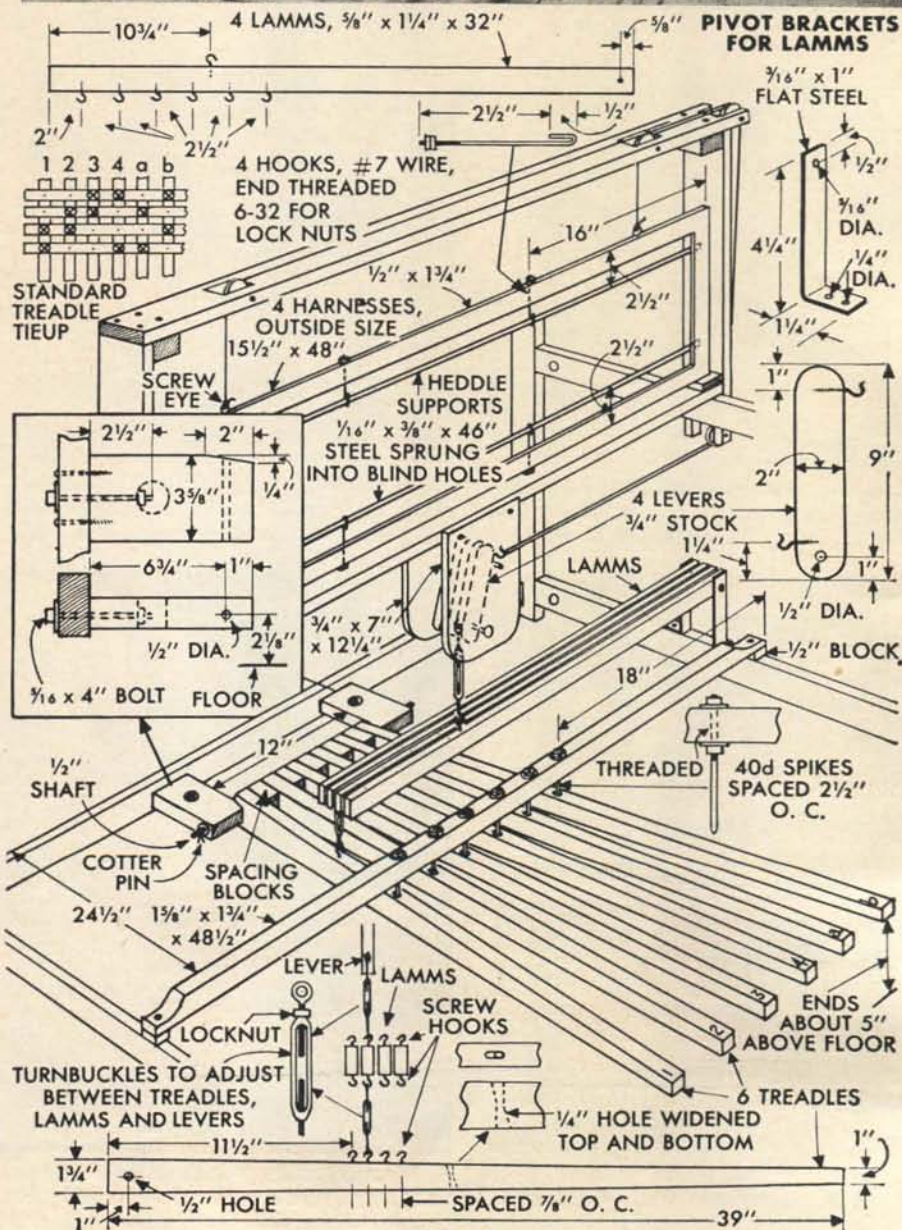
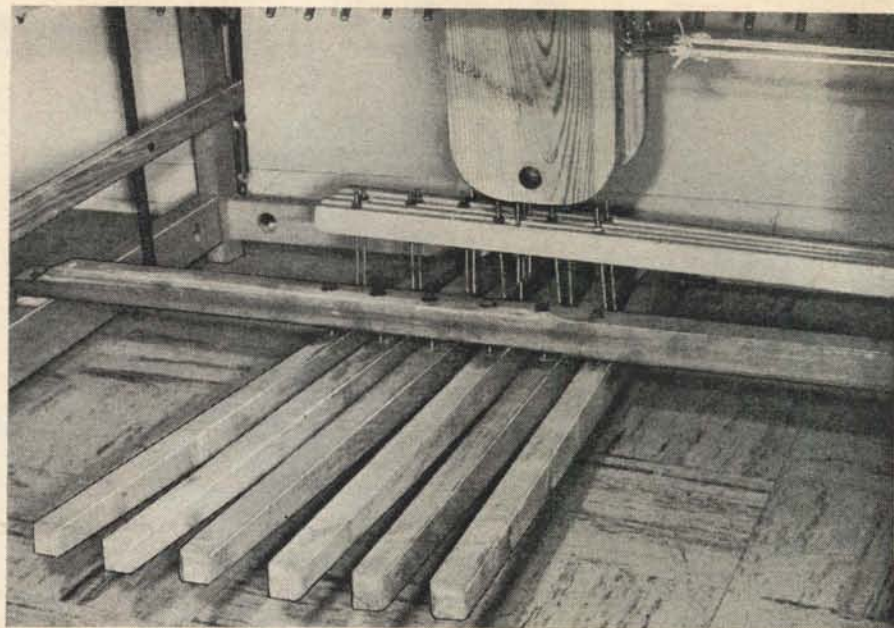


FIG. 8



# CUTTING DO-IT-YOURSELF ALUMINUM

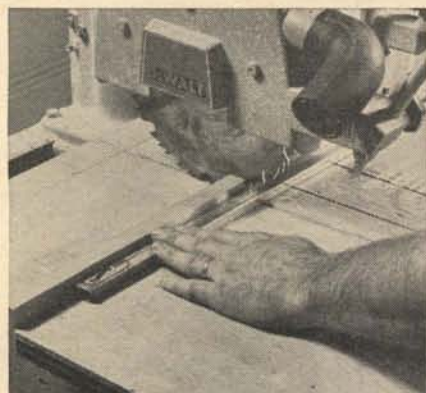


No matter what type of saw you use to cut aluminum, or any non-ferrous metal, we recommend proper eye protection.

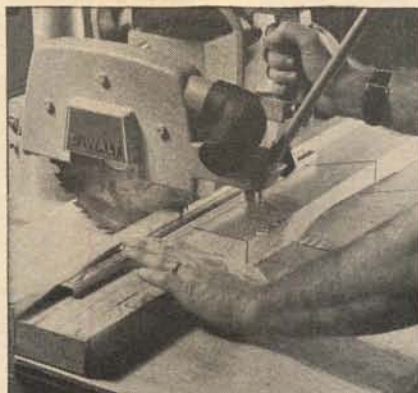
While the various shapes of do-it-yourself aluminum—rods, sheets, tubes, bars, extrusions, etc.—can be cut and worked with ordinary hand and power workworking tools, we have found over the years that a table or radial-arm saw can be used for cutting the majority of the shapes. We exclude sheet aluminum, as it can be cut with scissors or tin snips when curved shapes are to be cut; when a straight line is cut, simply score the metal heavily with a linoleum knife, then bend. The metal will snap cleanly along the line.

What we wanted to determine was which of the various types of saw blade used by most home craftsmen would make the smoothest cut, and stay sharp the longest. With the cooperation of the Reynolds Metals Co., and the DeWalt Division of Black and Decker, we ran a series of tests in the WORKBENCH Model Shop. Only two shapes were cut in the tests: storm sash with a very thin cross section, and bar stock, which has the heaviest cross section of the available do-it-yourself aluminum. The results of the tests are shown Figs. 7 through 11.

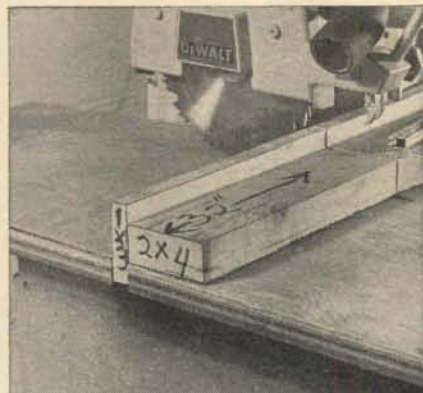
Two types of setup were used: Some cuts were made on the regular table, Fig. 1, others on a lift-jig as



1. Combination blade can be used, with work held on table. Note that saw teeth are at an angle to work.



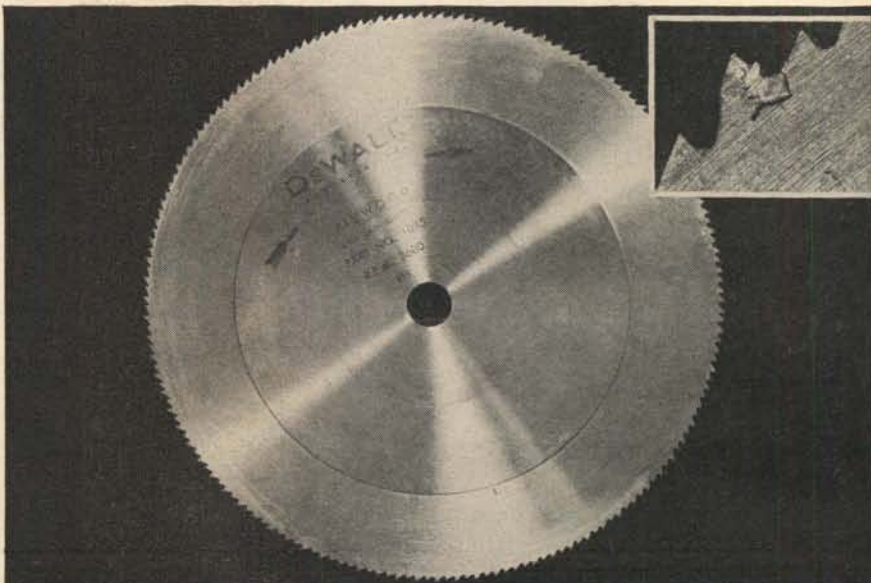
2. When lift-jig is used, teeth of blade enter work more nearly vertical, making better cut, (in most cases, this is).



3. A 1 x 3 and a 2 x 4 about 32 in. long will fit on most radial-arm saw tables to provide lift-jig for metal.

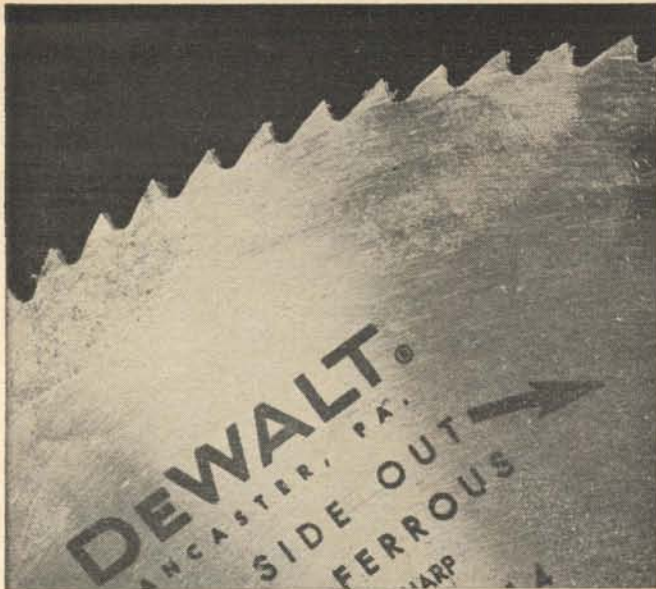


4. Best insurance to prevent do-it-yourself aluminum from welding to gullets of saw blade is to use wax.



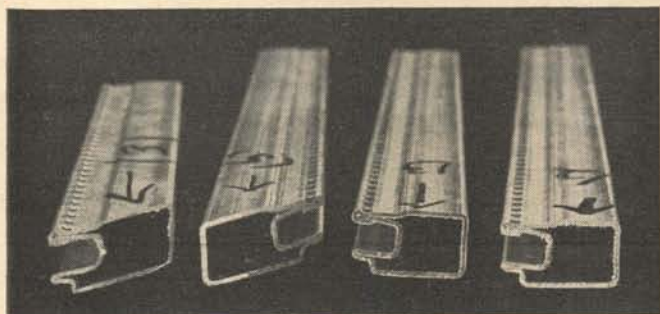
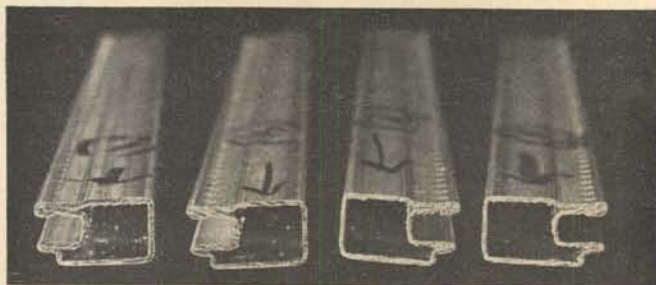
5. Plywood-cutting blade, about the best non-metal-cutting blade for the average home craftsman when cutting do-it-yourself aluminum, picks up small chunks of metal in teeth gullets without the use of wax.



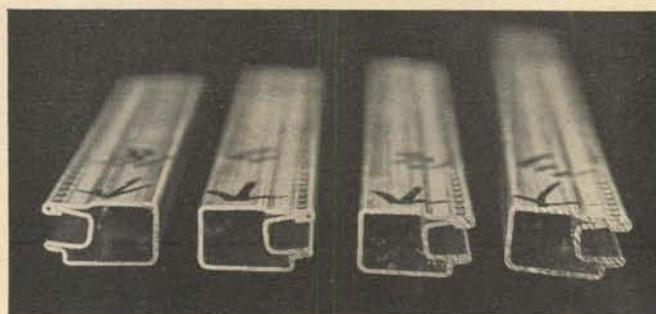


6. For saw blade that will not become dulled quickly, we recommend non-ferrous type that can be used for brass, copper and other non-ferrous metals as well as aluminum. Cost is moderate. Aluminum dust clings to teeth here, easily brushes loose.

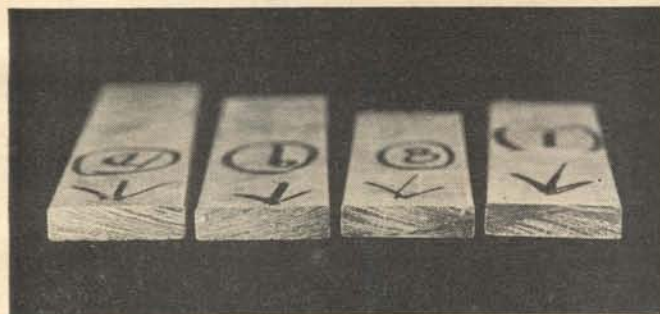
7. Work cut on regular saw table. From left to right: Non-ferrous blade with wax, non-ferrous blade without wax, combination blade with wax, combination blade without wax. Note slight burrs from both blades without wax.



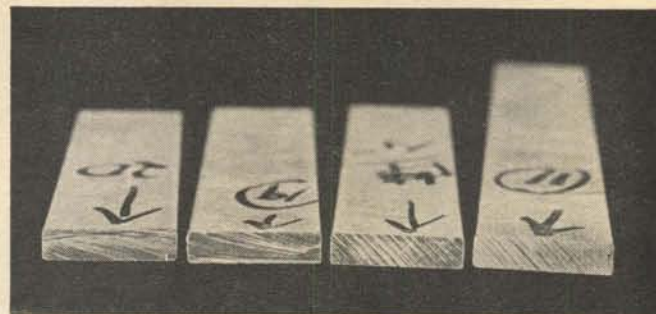
8. From left to right: miter cut with combination blade on table, using wax. Non-ferrous blade, on table, miter cut, no wax. Non-ferrous, lift-jig, no wax; combination, wax.



9. From left to right: cutting on table, plywood blade, no wax. Plywood blade, on lift-jig, with wax. Plywood blade on jig, no wax. Non-ferrous blade, lift jig, with wax.



10. Cutting bar stock, from left to right: On table, cutting with combination blade and wax. Combination blade on table, without wax. Using non-ferrous blade with wax, on table. Non-ferrous blade, on table, without wax.



11. From left to right: Plywood blade on table, cutting with no wax, slow cut. Same, but slightly faster pull of saw. Non-ferrous blade, on lift-jig, with wax. Combination blade on lift-jig, with wax. Note cuts vary considerably.

recommended by the DeWalt representative, lead photo and Figs. 2 and 3. He also suggested the stick wax, Fig 4, a product of the Johnson Wax Co. The latter is available at some hardware stores and at industrial-supply houses.

A carbide-tipped blade was tested, but the results are not shown. The moderately-priced blade used by home craftsmen for wood has widely-spaced teeth and did a poor job on the aluminum. A regular combination blade, used by many home craftsmen, and usually supplied with table and radial-arm saws was tested, as was a plywood-cutting blade. A non-ferrous blade, Fig. 6, somewhat more expensive than a wood-cutting blade, also was tested. It did a fairly good job, and naturally stayed sharp longer.

The lift-jig holds the material so the teeth of the

blade contact the metal more nearly at right angles, (this was on a radial-arm saw; the lift-jig would not be used on a table saw). The use of wax prevented chunks of metal from welding to the blade, as happens with a "dry" blade, Fig. 5. The photos are unretouched. Note that in some cases the cuts on the jig and on the table are almost equally smooth. A combination blade is adequate, but we recommend a plywood blade, lubricated with wax. In bar stock, cut more slowly. Wear a face shield; goggles will do, but chunks of metal can be hurled in your face and make cuts. We found only slight difference in the quality of cuts when sawing square and when cutting bevels. The work must be held firmly; generally the piece cut off, not held, had a rougher surface than the piece held firmly down and against the fence.  $\Delta \Delta$





# Installing A Ceiling Light

Do you have a room in your home where you would like to install a ceiling light, but are unable to get above the ceiling to do the wiring because of a second floor? This is the situation that existed in the home described in this article. The kitchen had been enlarged to provide a dining area at one end, but there was no ceiling light, and no outlet in the ceiling to permit easy installation of such a light. A modern pull-down lamp was the choice of the home owner, as by varying the height of the lamp it could be used by the youngsters for doing their homework, as well as for general illumination. The light also helped illuminate the kitchen and make it a more pleasant place to work.

The stunt used in this case was to keep the BX wiring on the underside of the ceiling and lead it to a wall switch that was combined with a receptacle. Electricity was run from an existing receptacle that was low on the wall. The first step, Fig. 1, was to chop a hole in the ceiling at the chosen location of the lamp. If the opening is over a joist, move the location a few inches either way. The opening then was extended from joist to joist. This permits the strap-type box to be nailed to the joists.

Notches were then chopped at the location of each joist, Fig. 2. These generally will be spaced 16 in. on center, although some older homes may have joists spaced 24 in. on center. If the ceiling is of plasterboard, use a sharp wood chisel and notch each joist to accept the wire to be used. BX cable or non-metallic cable is easily handled as shown and described. At the corner between the wall and ceiling, Fig. 3, extend the notch around the corner. Notch the joist and top plate of the wall as necessary.

Strip the outside cover of the cable back about a foot, fit a fiber bushing around the wire at the end of the cut cover and fit it through a knockout in the strap-type box to which the ceiling lamp will be fitted. Tighten the cable securely by the box clamps, Fig. 4. Start the cable through the holes in the ceiling, running it up over the plaster or plasterboard, Fig. 5. Nail the strap to the joists, positioning the box as close to the selected location of the lamp as possible. Pull the cable through the ceiling to the last notch next to the wall, Fig. 6. (If you are lucky and the joists run in the same direction as you wish to run the wire, a hole need be chopped only at the location of the light, and at the corner between wall and ceiling. The notch for nailing



up the strap of the light box will, of course, be at right angles to the way showed in the photos.) At the corner notch, tie a weight to the end of the cable and drop it down through the wall, Fig. 7. A hole is punched in the wall just above the baseboard, directly below the corner notch, through which the cable is led. Use special staples, made for fastening cable, to secure the cable at the corner, Fig. 8.

Now, locate the wall switch. Check the height of the switch with others in your home; you might want this one higher or lower. Cut a hole through the plaster for the switch box, Fig. 9. A three-wire cable is necessary for the switch circuit, and it is fitted in the switch box, Fig. 10. If the switch box is not located adjacent to a wall stud where it can be screwed or nailed, use sheet-metal clips, as shown in Fig. 11. The long portion of the clip is fitted inside the wall, then the tabs are bent over the edge of the box to hold it.

Back to the wire from the ceiling box: Assuming you are going to get current from an existing receptacle, chop holes on the wall studs, Figs. 13 and 14,



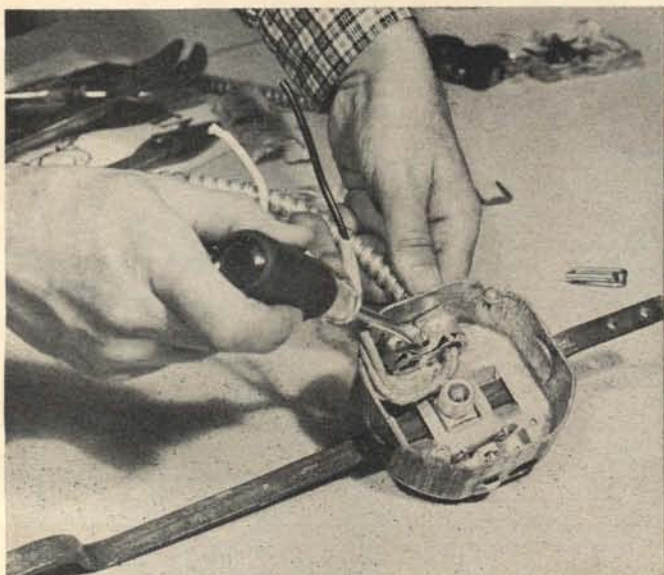
1. Locate the position of the ceiling light and chisel a hole in the plaster, making it run from joist to joist.



2. Make additional holes in the ceiling, one on each side of the joists which will be about 16 in. on center, as a rule.



3. At the corner between ceiling and wall chop away the plaster to form a continuous notch.



4. Strap-type fixture box now has BX run into it through knockout plug. Clamps hold wire tight.



5. Box is fitted in hole in ceiling and strap nailed to joists. Cable from box first is started through holes in ceiling.





6. Cable is pulled under the joists in notches cut in plaster, then up over top of ceiling, led to notch in wall.



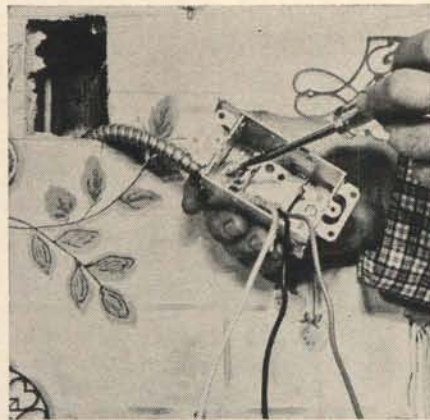
7. Weight is tied on end of wire so it drops straight down inside wall to opening cut near floor.



8. Heavy staples are used to hold cable solidly against studs and joists so maximum of plaster can be applied.



9. Opening for switch box is marked, then cut with chisel. Check height from floor to switch by checking others in the house, perhaps changing.



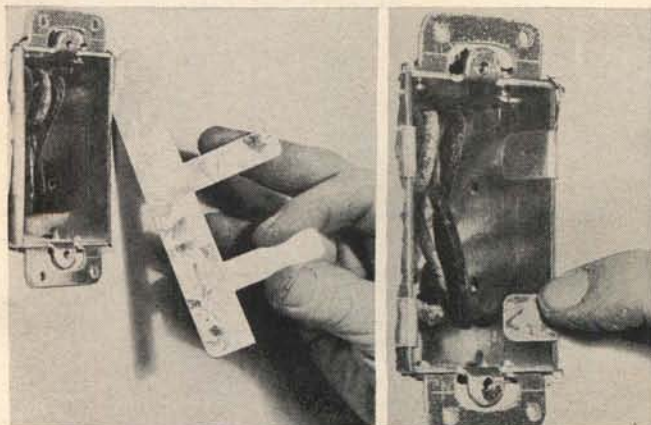
10. Three-wire cable is led to switch to control light, power receptacle.

as on the ceiling joists, and run the cable to the box. The wiring diagram in Fig. 12 shows how the wires are run from the ceiling lamp to the switch-receptacle box, and to the existing receptacle to pick up current. All connections must be made inside the metal boxes. If the original receptacle box is too small to hold the added wires, replace it with a larger one. The alternate circuit in Fig. 12 shows the wiring when a receptacle is not used with the switch. Only two-wire cable is required with this circuit, rather than the three-wire with the receptacle. Wire used for these circuits should be no less than No. 14. Lighter-gauge wire could cause trouble, and national codes require at least 14-ga. wire for such circuits.

In the event there is no existing receptacle to which you can run wire to pick up current, and you do not need a receptacle, chop a slightly larger hole down near the baseboard so you can fit an electric drill in the opening. Drill down through the wall plate and run the wire to the basement, where you can connect into one of the basement circuits to pick up current. Also, should you be doing some fairly extensive remodeling, remove the baseboard, chop the notches in the plaster behind the baseboard, run the wire, then replace the baseboard. Be careful not to nail into the cable. This will save some finish plastering, but the notches and holes should be filled with rough plaster.

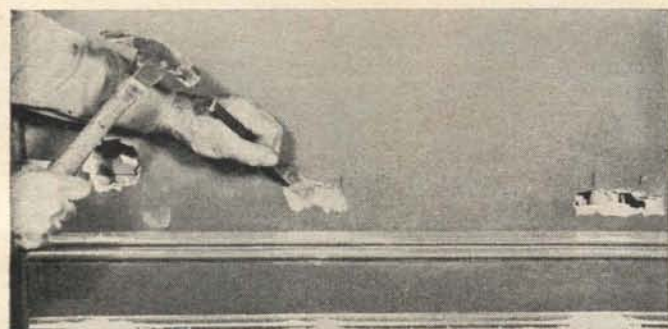
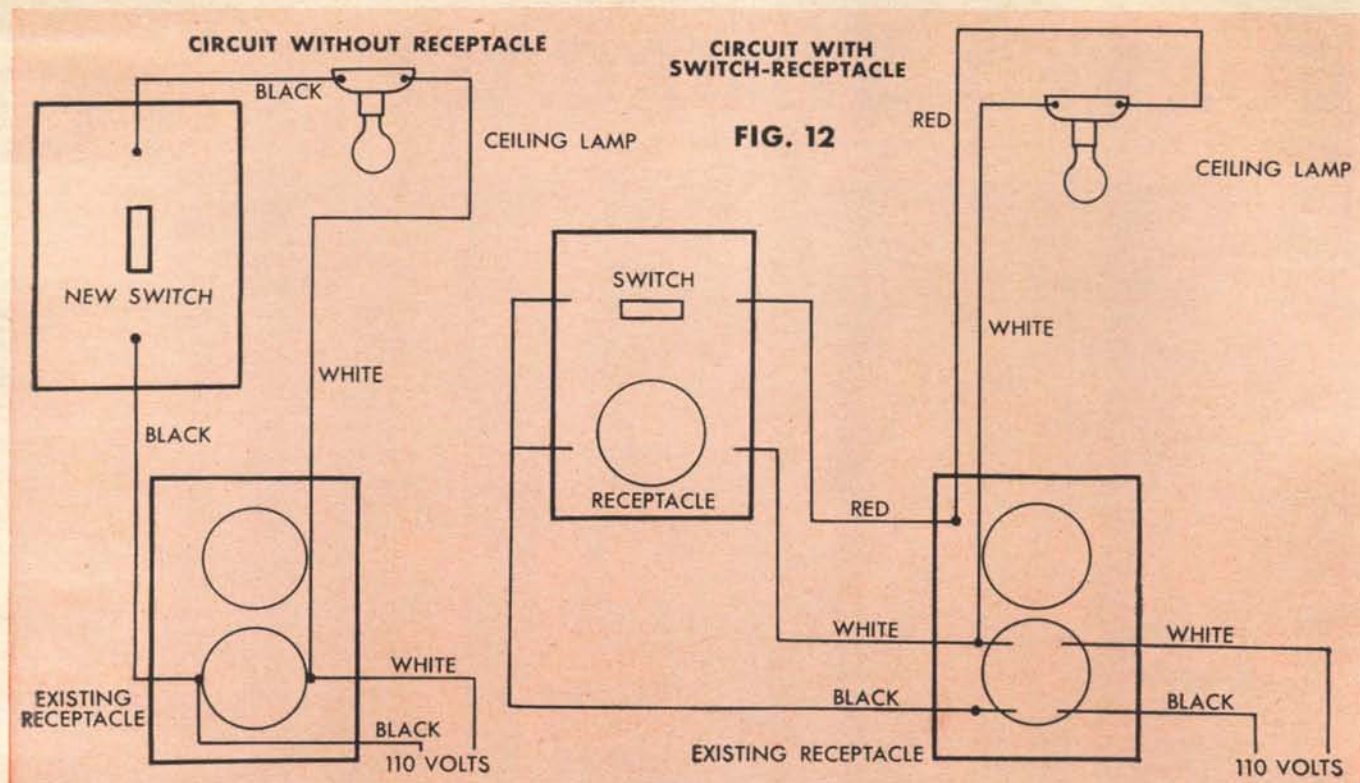
With the wiring done, start plastering the notches

and holes. Back up large openings with wadded-up newspaper or steel wool. Pack in the plaster, but keep it below the surface. When it has set thoroughly, do your finish plastering, smoothing the wet surface with a sponge. When it has set, sand smooth. Prime with shellac before painting the surfaces, or putting on wallpaper.

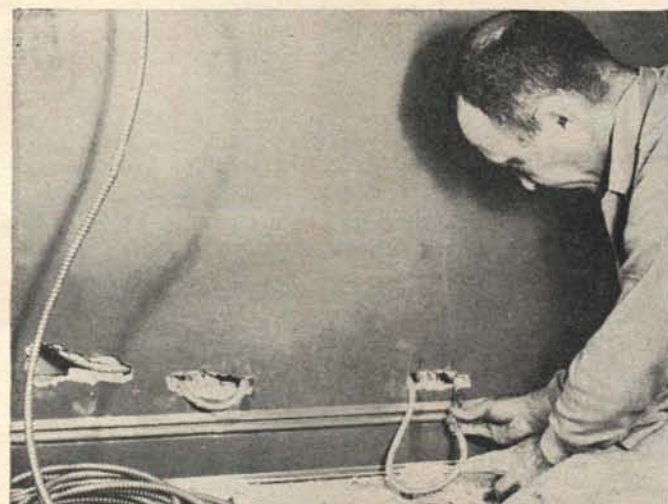


11. If receptacle box is not located near to wall stud, use these metal clips to hold the box on the plaster.





13. Cable is led along the wall in the same manner as along ceiling, by chopping notches across the studs.



14. Long hook made from coathanger wire may be needed to pull wire through openings in wall to lead it to receptacle.

The ceiling lamp now is wired to the ceiling box and attached. Special fixtures, if required, will be packed with the lamp. Clean up the plaster and debris—best to clear the room before starting the job, or use drop cloths to protect the furnishings. Close doors to the room when possible, as plaster dust will get into everything. After the clean-up, do your painting or papering and the job is done.

Although it was not specifically stated in the article, we assume that any home owner will know that the fuse in the circuit must be removed, or the circuit breaker tripped, before any work is done.  $\Delta \Delta$



15. Lamp fixture is temporarily tied to box; final connection is made and fixture attached after plaster has set.



# CURVED STAIRCASE

JACK DOWN

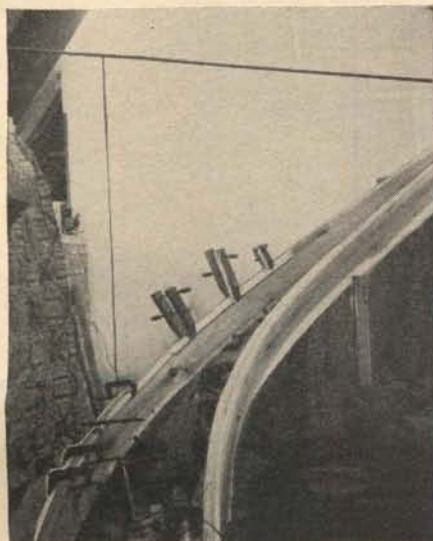


We must first state that the dimensions shown for this stairway will not necessarily fit all situations. For example, while the distance from A to B in the stairway shown is longer than from B to C, your situation might reverse this ratio. Also, the height from one floor to another

may vary. Generally, when a room has an 8-ft. ceiling, the distance from one floor to another will be about 9 ft. This divides so that 16 risers of about 6 $\frac{3}{4}$  in. will fit. The treads and risers of an "ideal" stairway should have a total dimension of 17 in. This allows 7 in.

for the riser, (vertical member), and 10 in. for the tread, (horizontal member). The average width of our tapered treads is 10 in., thus the risers should be approximately 7 in. We say approximately, because seldom, if ever, is a stairway built that has the "ideal" dimensions.

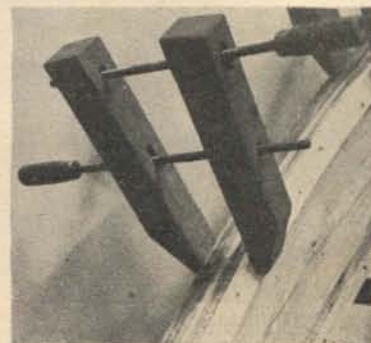
The first step for construction of the staircase was to make a scale drawing. From this drawing a "jig" was made on which the stringers were formed. We cut down a hickory tree on the property, dried it, then had it ripped and planed into  $\frac{3}{8}$ -in. planks. For the average builder,  $\frac{3}{8}$ -in. plywood would be as good. Our strips were full length; with plywood it would be necessary to splice the lengths, using glue and ring-shank nails or drive screws with a scab about 2 ft. long. The strips can vary in width—depending on the unsupported length—from 8 to 12 in. Using the horses as support, and securing the stringers at top and bottom with angles, we curved wide strips from top to bottom. Strips 1 $\frac{1}{2}$  in. wide then were glued and clamped to the wider strips. When the glue had set we glued on another full-width strip to each stringer. This was repeated for four full-width strips and three sets of narrow strips. Brackets were fabricated from steel flats to attach the inner stringer to the walls near the top and bottom for greater rigidity. The curved, fabricated stringers were quite rigid in themselves. The treads then were cut all the same size and the risers fabricated from steel flat. Note that some of the treads had to be shortened to fit. The rail for the stairway was bent from channel, using a hydraulic jack and the setup shown. The bar between the chain ends



Views from above and below show how fabricated "stringers" were held with clamps while glue set. Rough "horses" or supports were spiked together, positioned under center of stringers.



Closeup view shows clearly the several laminations that were glued together to form flexible, curved stringers.

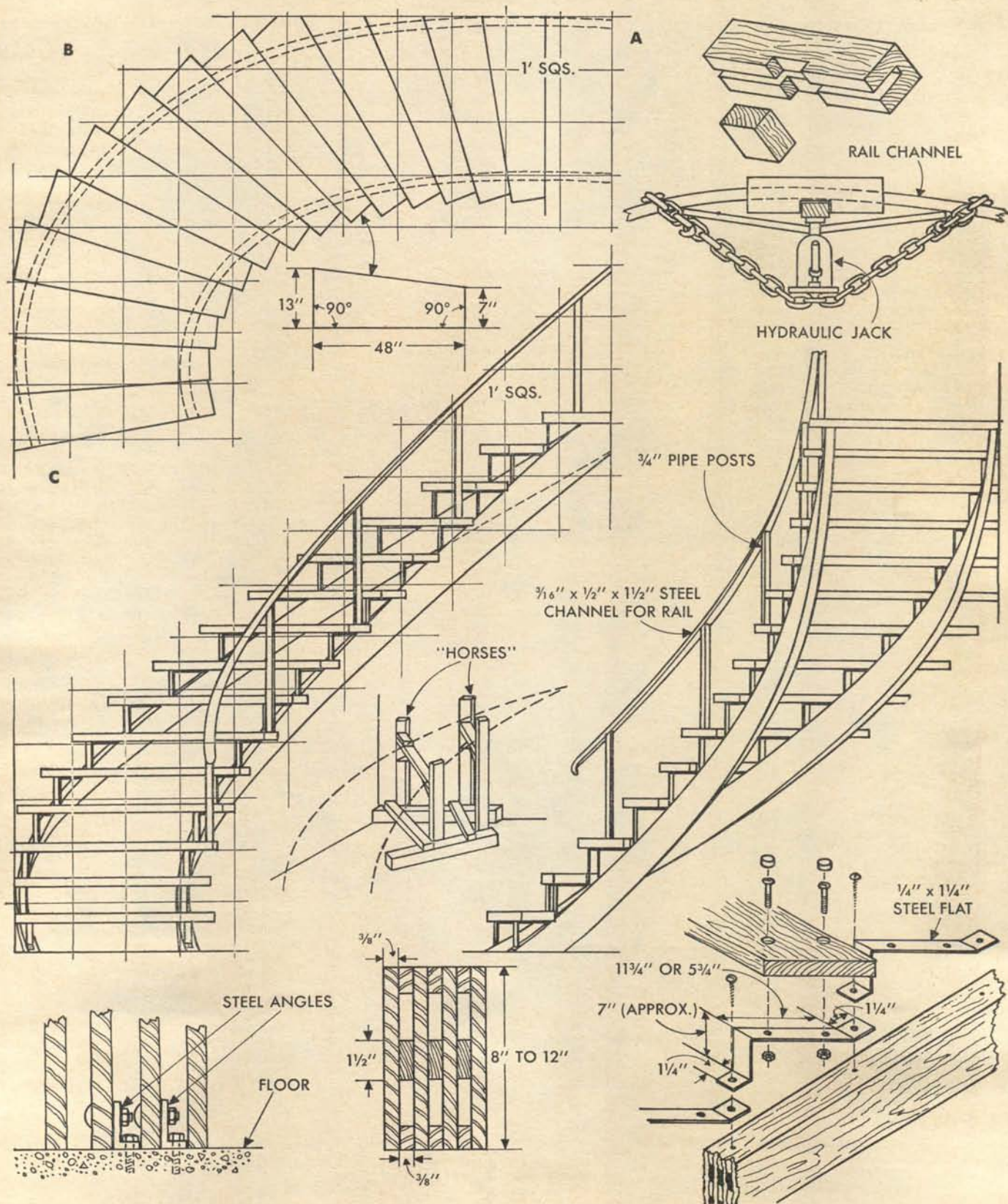




simply keeps the chain from sliding toward the jack. Posts for the rail are  $\frac{3}{4}$ -in. pipe. For the bases we cut 3-in. lengths of the rail channel and welded them to the pipes. Floor flanges would do as well. While it was originally determined that rods

from the ceiling would be used for support, it was found that they were not needed. We did install one short pipe column under the outside stringer down to the floor. The stairway was steady with two men on it carrying a cast-iron bathtub.

Again we must say, this stairway is a project done by one man. It will give you the general idea, and the problems to be encountered. Your stairway will have to be planned, engineered and tailor-made for your own situation.  $\triangle \triangle$





# BUTTERFLY TABLE





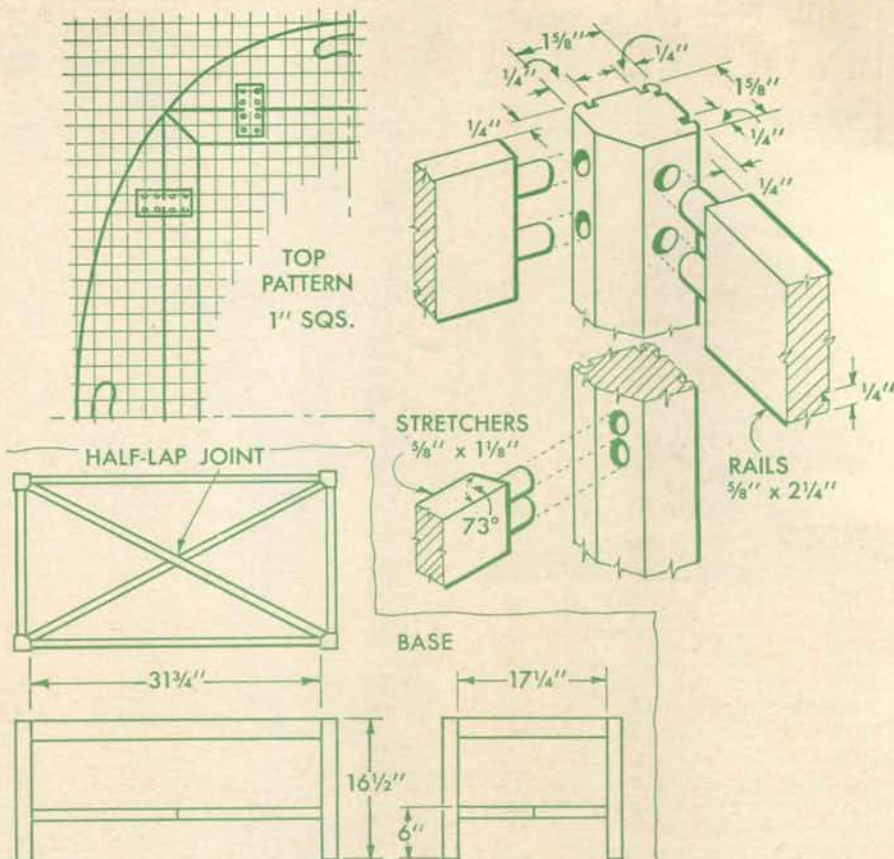
## RALPH TREVES

With its unusual wings that fold up, this table makes an interesting and challenging project on which a number of power tools can be used.

The table top itself is cut from  $\frac{3}{4}$ -in. hardwood plywood, the edges banded with veneer tape. The leaves are cut from straight-grained hardwood to match the veneer. Note that a narrow groove is cut 2 in. from the edges of the table with a veining bit in a portable router. A diagonal runs from this veining to the table-top corners. The four leaves are cut from the hardwood, using a pattern made from an enlarged drawing of the squared pattern. A band saw or jig saw is used to cut out the leaves, and the hand openings require the use of a jig or saber saw. Unless you have facilities for brazing band saw blades, the band saw cannot be used for the hand openings, as the blade would have to be broken and then rejoined by brazing.

The four legs are  $1\frac{5}{8}$ -in. square and  $16\frac{1}{2}$  in. long. Two sides are fluted, three of the corners are rounded. The fourth corner is chamfered, or beveled, to accept the ends of the stretchers. The latter are  $\frac{5}{8}$  x  $1\frac{1}{8}$ -in. stock, (hardwood, as are the legs and rails), the length being determined by fitting between the legs when they are temporarily assembled with the rails. The stretchers are half-lapped at the center and the ends are cut at an angle of 73 degrees to meet the beveled faces of the legs.

The doweled joints of the rails,



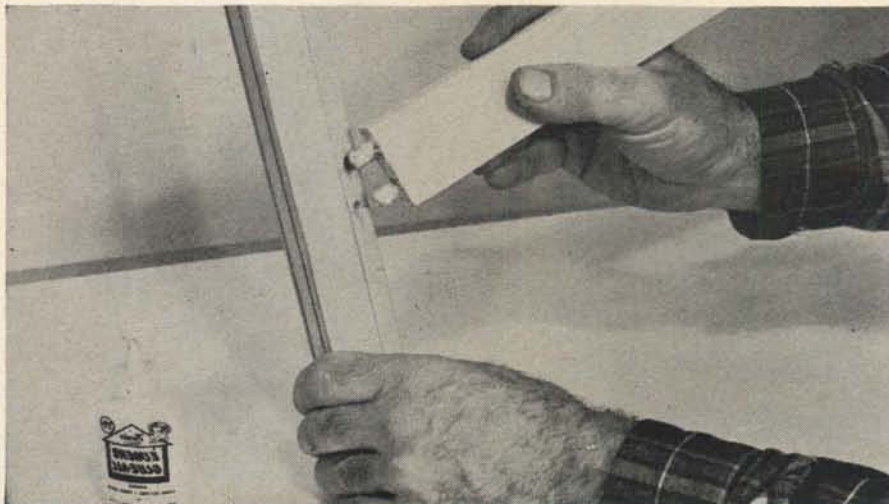
stretchers and legs are made, then the parts are assembled "dry" to check for fit. The dowel joints, incidentally, can be made most easily by the use of dowel jigs or dowel centers available from several of our advertisers. When the fit of the assembly has been found to be all right, glue is applied to all joints and the leg-rail-stretcher assembly is clamped together. Making the

assembly will require some juggling to get all parts and joints to align; an assistant would be of help for this operation.

While the glue is setting on the supporting assembly, start the finishing work on the top and leaves. Cut the center part of the top square and true, then apply veneer tape with contact adhesive. Trim and sand the tape as required.



Legs are fluted on two sides, three corners rounded, other corner beveled.



Legs, rails and stretcher must be glued up in one operation to make support assembly. This will require some juggling to align parts.



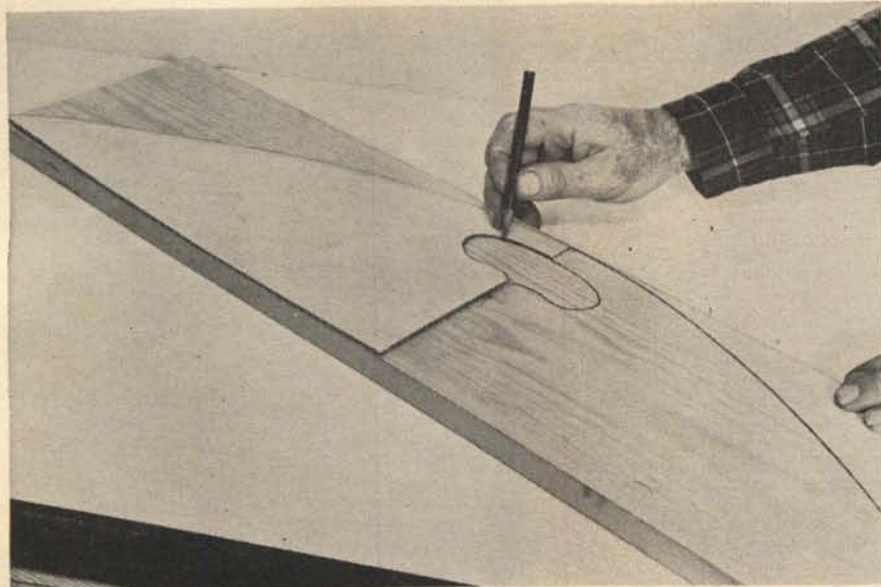


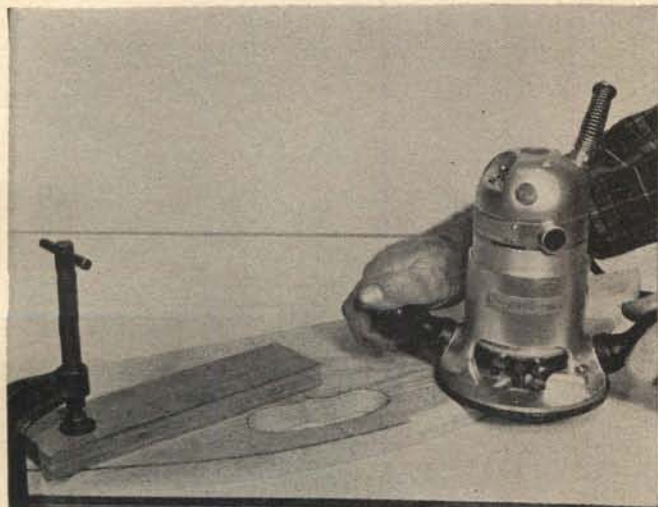
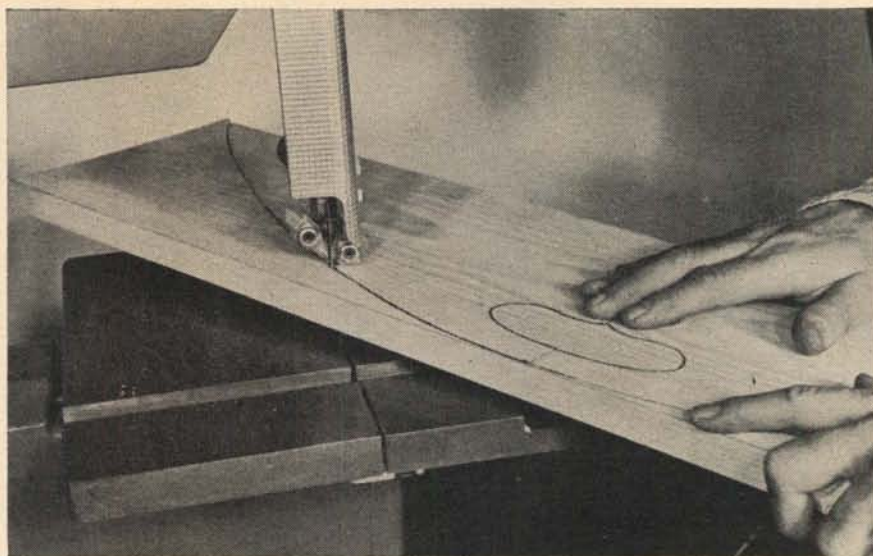
Table wing is 5 in. wide, shaped from pattern made from squared drawing. Cut with band or jig saw, round edges.

Take plenty of time and care on the finishing of the table. Sand every surface carefully. Apply stain, then resand with fine-grit paper to be sure of an absolutely smooth surface. Apply clear lacquer, allow it to dry thoroughly, then rub with pumice stone and rottenstone. Clean well, then apply another coat of lacquer. Repeat the operations until you have a deep, glowing finish that will last for years. △ △

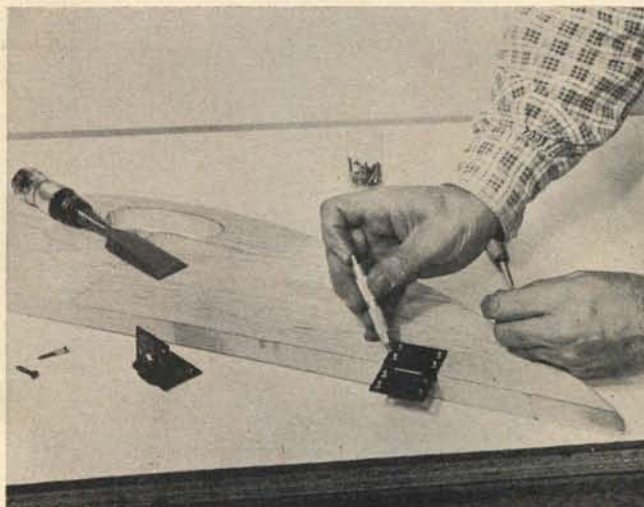
Finger opening in wing requires drilling hole for insertion of jig saw blade, or saber saw. Band saw not practical.

The edges of the leaves must be rounded. A router with a curve-cut bit is ideal for this. Run the router along the edge on one side, then turn the leaves upside down and finish the rounding of the edge with the second pass.

Locate the hinges from the pattern and cut the mortises; use a wood chisel to square the mortises to accept the square-corner hinges. (Special "Butler-Tray Hinges" are available from Christenson Hardware Mfg. Co., Caldwell, N. J. for \$3 a pair, in heavy brass.) Install the hinges on the top, then fasten the top to the leg assembly by driving screws up through the rails into the top. Fit the leaves to the top by attaching the hinges and the assembly is complete.



Router with special bit makes quick work of rounding edges of leaves uniformly; two passes are required.



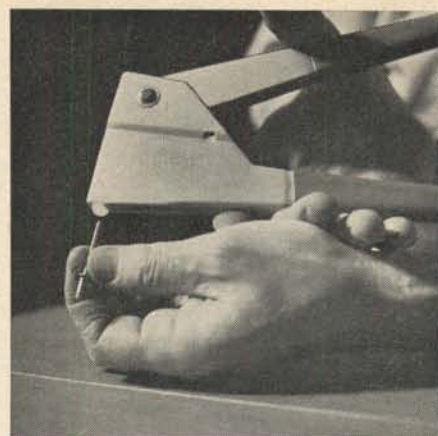
Special spring-loaded hinges hold wings securely, flush with table top. Router will cut neat mortises for hinges





# "POP" RIVETOOL

As easy to operate as a pair of pliers, and with as many practical applications as a staple gun, this tool should be in every craftsman's tool kit. A slightly scaled-down version of an industrial unit we



To load rivet gun, long mandrel of rivet is fitted into gun. Rivet is fitted in hole, handles are squeezed.



tested a couple of years ago, the RiveTool is basically a device for "blind riveting". That is, for riveting from one side of a sheet of metal, wood, plastic, etc. Rivet lengths are  $\frac{1}{8}$ ,  $\frac{1}{4}$  and  $\frac{1}{2}$  in., providing a wide range of thicknesses that can be fastened. The rivet is formed as shown in the sketch at the bottom of the page; as the rivet is formed it pulls the two or more pieces of material tightly together and rivets them firmly. If the material is soft, such as fabric, plastic or plywood, small back-up plates are provided to prevent tear-through.

In use, a rivet is fitted in the tool, long mandrel first. The handles are squeezed together like pliers, (even a woman can do it), the rivet is formed and the projecting mandrel is snapped off. Releasing the handles ejects the waste portion of the mandrel.

As we stated, there are so many uses for the tool we cannot list them all. New applications are being found every day, and every craftsman will discover more uses for his own work.

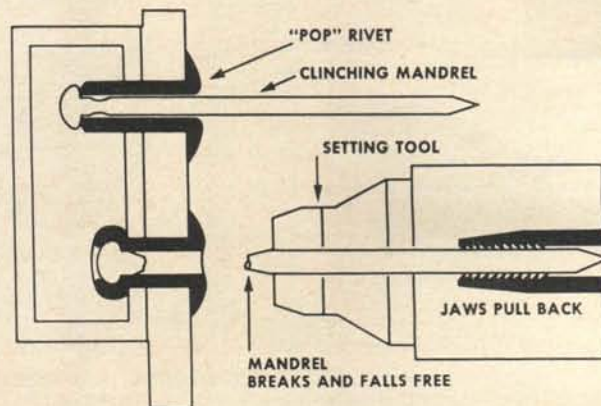
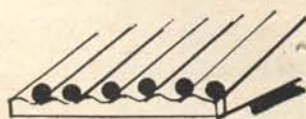
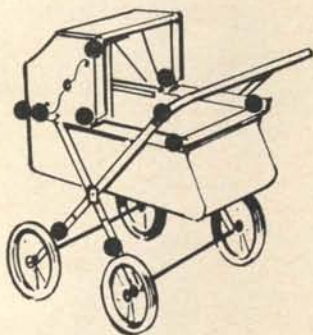
Quality of materials and workmanship in the RiveTool are excellent. Cost of the unit is reason-



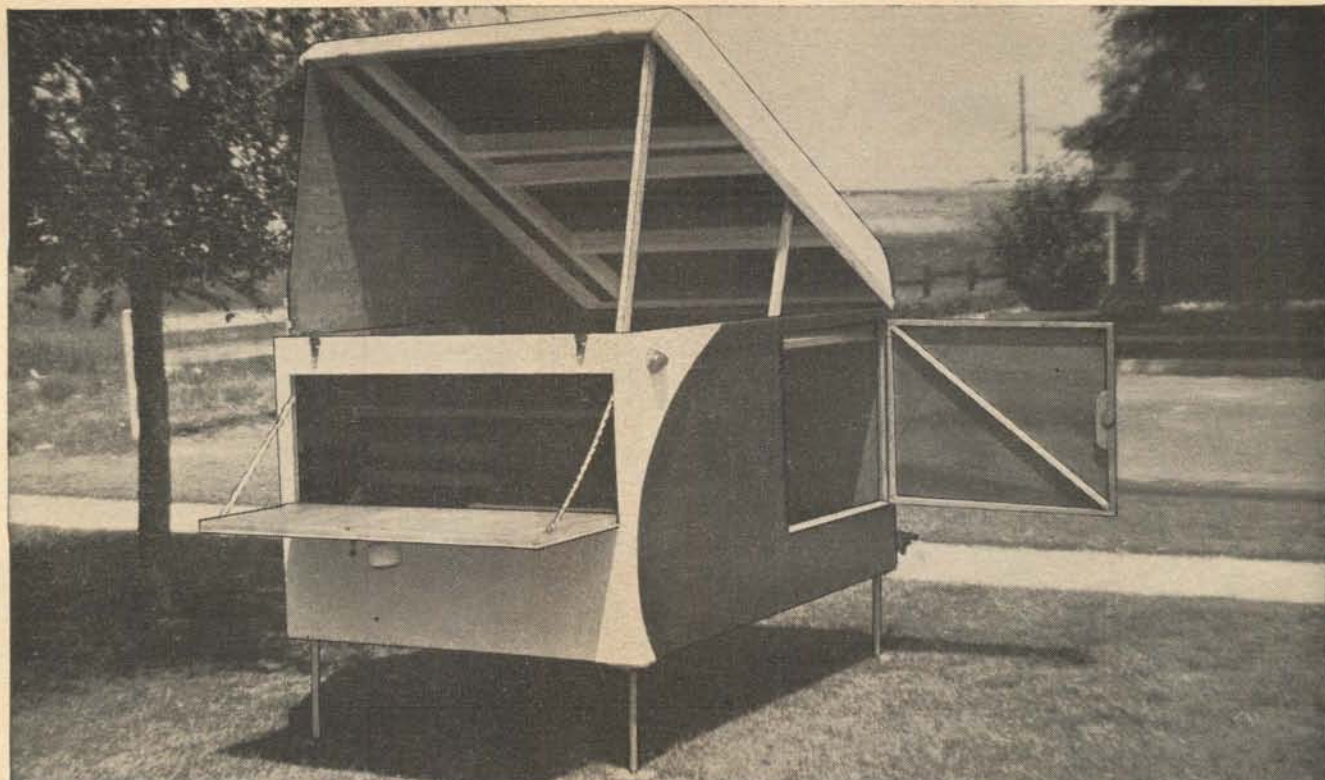
Trafficator (turn indicator) on foreign car fell off; it took one minute and one rivet to replace it without disassembly.

able, and packages of rivets are also moderate in cost. We are proud to award the RiveTool our Shop-Tested Seal, knowing it to be a quality-built, inexpensive and absolutely practical tool that every craftsman will appreciate having in his tool collection.

RiveTool is made by Fastener Division, United Shoe Machinery Corp., Shelton, Conn., and is available from some of our mail-order advertisers and from hardware stores.  $\Delta \Delta$







# ONE-WHEEL CAMPING TRAILER

JAMES HYEK

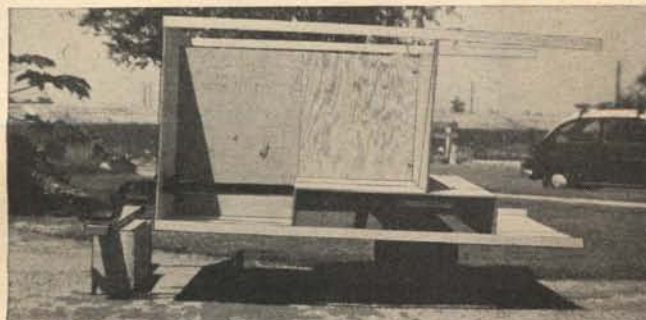
Started just three weeks before vacation time, this trailer was designed to be quickly and simply built and to be lightweight for high-speed towing. It is built around a one-wheel trailer with a triangular frame. We purchased our frame-and-wheel assembly secondhand; should you purchase a new one we would suggest one with a square or rectangular frame as it would simplify construction.

First step is to block up the frame so it is perfectly level. Rotate the wheel a full 360 deg. to determine the required size of the wheel well. Allow an additional 3 in. all around to compensate for the flexing of the spring.

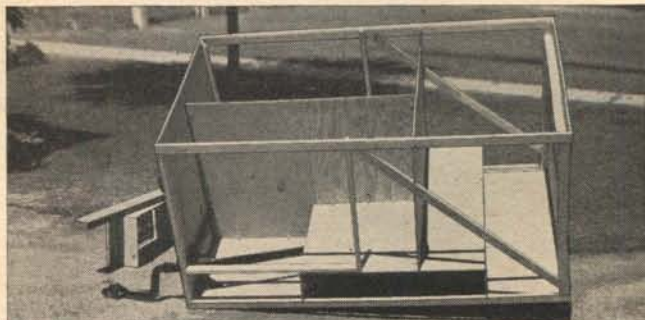
Make the bulkheads A, B, C, D, E and F from  $\frac{3}{8}$ -in. fir plywood, exterior grade. All bulkheads were cut to be 48 in. wide, to take full advantage of the width of a 4 x 8-ft. sheet of plywood. We were able to remove the front portions of the towing tongues, so cutouts were made in the bulkhead and it was slipped over the frame. It was positioned parallel to the "towing line" and fastened to the frame. Nuts and bolts were used, with mending angles for the attachment. The height of bulkheads D and E next was determined. Mending angles and nuts and bolts were used to attach them to the frame. The size of the front compartment

floor now was determined and it was cut to size and bolted in place. The floor of the center compartment also was cut to shape and fastened to the two low bulkheads.

Bulkhead B now is cut to size and fastened on the centerline of the trailer. Bulkhead C is made next and fastened in the position shown. Four 6-ft. lengths of 1 x 2 now are fitted in the notches in the various bulkheads to provide a secondary frame. The trailer will appear as in Fig. 1, with the addition of the floor for the rear compartment. Bulkhead F can be made in several pieces, or can be a duplicate of bulkhead A with the door cut out. Reinforce the edges of the cutout



1. Front bulkhead and all inner bulkheads, plus floors have been installed, as well as four 1 x 2 stringers.

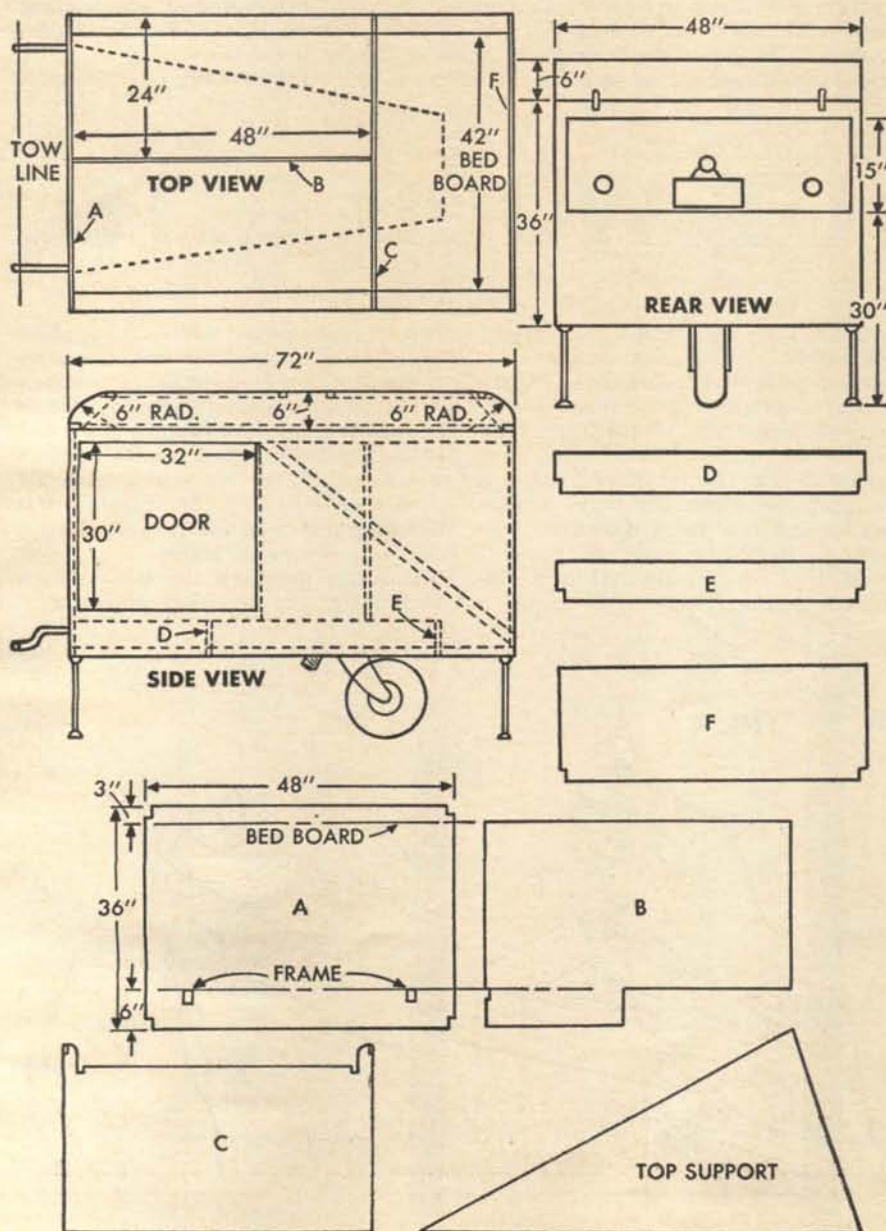
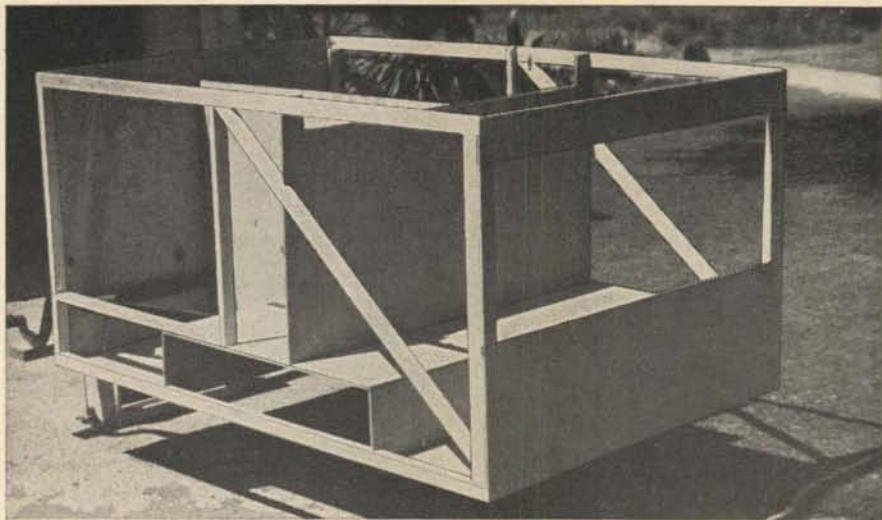


2. Diagonal and vertical braces, cut from 1 x 2s have been installed here, as well as rear bulkhead with door.



3. Rear bulkhead with kitchen door can be made in several pieces, or it can be a duplicate of bulkhead A, the door being cut from it for replacement.

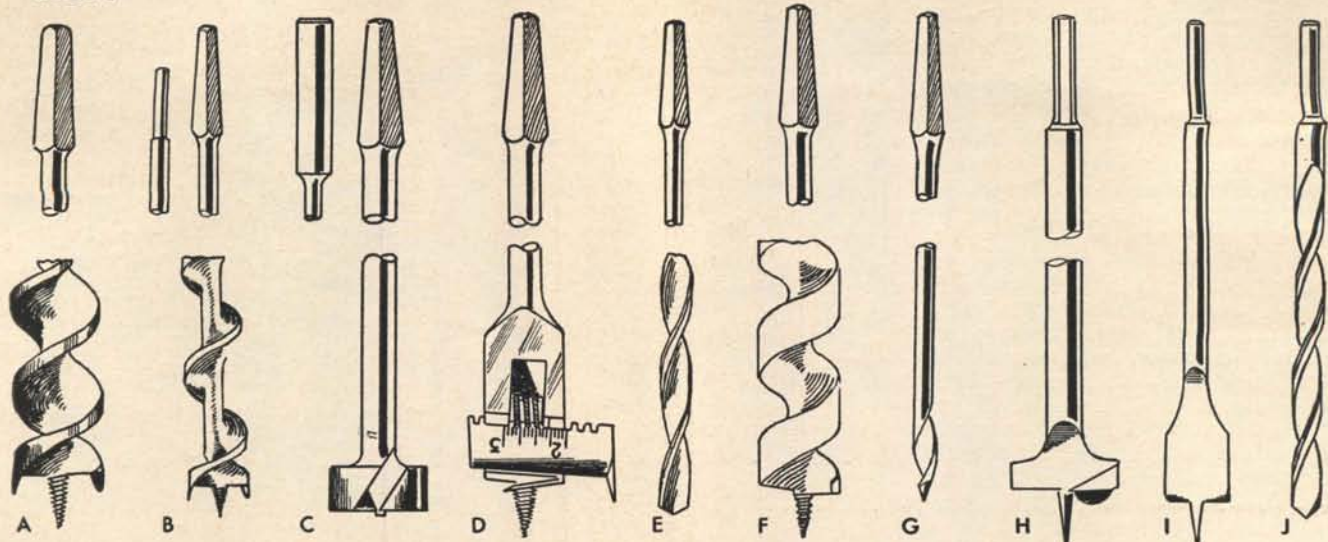
with 1 x 2s, allowing them to project slightly to provide a lip against which the door can close. Additional lengths of 1 x 2 are fitted in the trailer as indicated in Figs. 2 and 3. These strips both reinforce the trailer body and provide attachment surfaces for the sides. Sheets of  $\frac{1}{8}$ -in. plywood measuring 3 x 6 ft. are used to cover the sides. Attach them with glue and screws. Make the cutouts for the side doors, saving the cutouts. The openings are framed with 1 x 2s, the cutouts are reinforced with 1 x 2s, then hinged in place.



The rear door, which becomes a mobile kitchen, is made by framing with 1 x 2s on edge and covering both sides with plywood. Set the 1 x 2s in so the door edge will fit against the framing of the opening. This hollow door now is fitted with flush-mounted tail, stop and turn-indicator lights. After hinging the door, fit it with chains to hold it horizontal when open. The trailer top is built somewhat like an inverted mortar box. The sides are 6 x 72-in. strips of  $\frac{3}{8}$ -in. plywood. 1 x 2s are fitted along the top and bottom edges, then the strips are notched for 48-in. lengths of 1 x 2 that fit between the two sides. Temporarily clamp the sides to the trailer, then build the top in place. Cover it with  $\frac{1}{8}$ -in. plywood. Hinge it to the trailer at the front with a piano hinge. Tack a strip of rubber over the hinge to make it watertight. Half-round molding is now attached around the lower edge of the top as a rain stop. The bed board, measuring 42 x 72 in. now is cut to fit over bulkheads B and C and on flanges attached to bulkheads A and F. Further support was provided by lengths of 1 x 2 attached to bulkheads A and F and notched into C. We used only one triangular support for the roof. It is hinged to the side and folds down over the bed when the top is lowered. The rear of the top is held by two large suitcase clamps. We use a small lean-to tent on one side and rear of the trailer, so the single triangular support was enough; you may wish two.

The kitchen compartment was finished with pull-out slides, drawers and shelves, along with a camping ice box and a camp stove. Four pipe flanges are fitted to the underside of the trailer at the corners and lengths of  $\frac{1}{2}$ -in. pipe fitted with floor flanges are used to level up the trailer and hold it solid at a camp site.  $\triangle \triangle$



**FIG. 1**

A, Auger Bit with fine-thread point, has square-taper shank for hand brace. B, Auger Bit with solid center, single twist; can have square-taper for brace or  $\frac{1}{4}$  in. and  $\frac{1}{2}$  in. machine shanks. C, Forstner Bit, with machine and square-taper shanks. D, Expansive Bit comes in two regular sizes. E, Electrician's Bit, about 18 in. over-all length. F, Ship Auger, coarse-thread point, square-taper shank. G, Gimlet Bit, available in range of sizes. H, Single-Cutter Bit with brad point. I, Wing, or Spade, Bit with brad point. J, Twist Bit for wood, similar to twist drill for metal. H, I and J all have  $\frac{1}{4}$  in. shanks.

## ALL ABOUT WOOD BITS

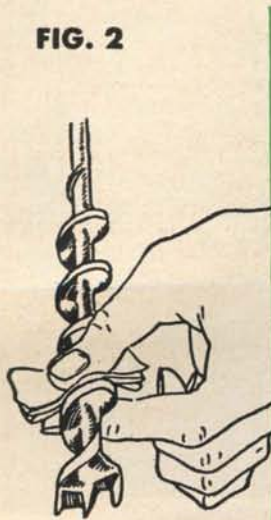
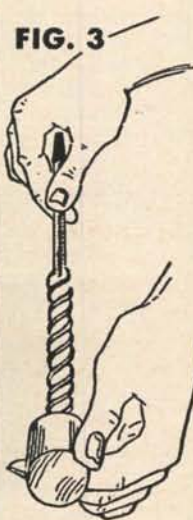
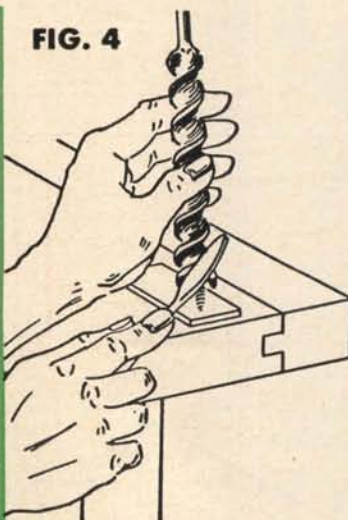
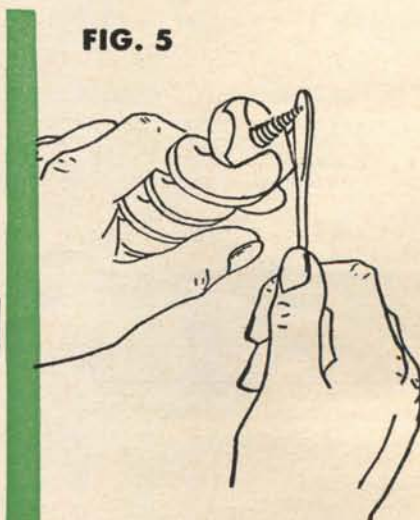
Boring a hole with a wood-boring bit is such a common operation that nobody thinks much about proper use and care of the tool until it gets rusty, won't cut and won't clear chips. Then all you can do is replace the bit with a new one.

Properly used, a wood bit will last half a lifetime and more, and bore accurate holes. Unless, of course, you hit a nail or drop it point-down on a concrete floor. Cer-

tain damage will result also if you toss several wood bits loosely in a drawer with other tools with no provision to protect the cutting ends. Sets of bits usually are furnished with a box or plastic container with pockets, but if you don't have a complete set, there are ways of protecting the bits from damage.

Fig. 1 shows 10 common types of wood bits. A through G are designed primarily for use with a

brace, although several are supplied with round shanks for use in a portable drill or a drill press. H through J are designed especially for use in portable drills. These 10 bits do not include all the types available, but are those most commonly used by craftsmen. A possible exception is the ship auger—sometimes called a car bit, although there is a slight difference between the two—which originally was used by shipwrights

**FIG. 2****FIG. 3****FIG. 4****FIG. 5**



for boring deep, true holes in hard-wood. It is a single-spiral twist and is long, about 18 in. in common sizes, and cuts fast. The electrician's bit, E, is often used by craftsmen where it is necessary to bore holes deeper than possible with bits of standard lengths. It too, has a very long shank, averaging 18 in.

The common auger bit is available in single and double-twist types, and also in single-twist, solid-center type, B in Fig. 1, for use in drill press or portable drill. The latter type is available with a straight shank and a brad point.

Auger bits for use in a hand brace are available with fine, medium and coarse-pitched screw points for slow, medium and fast boring. The fine point draws the bit slowly into

the wood, the medium is slightly faster and the coarse point gives a relatively fast advance in softer woods. In most work the fine-pitched screw point is best.

The Forstner bit, C in Fig. 1, differs from most others in that the spur is continuous except at the chip opening just ahead of the cutting edge. It bores slowly and cleanly, is accurate and will not drift with the grain. It can be used to bore any segment of a full diameter at the edge, and is easily started free-hand at any but the steepest angles. It is widely used for boring screw pockets at an angle on the inside faces of table rails. It is available with a squared tang or a round shank.

The gimlet bit is still widely used, G, many craftsmen preferring it for boring holes for screws. It's fast, quite accurate and does not tend to drift in deep holes.

The expansive bit, D, usually comes in two sizes. All types have a screw point, a fixed cutter and two moveable cutters with spurs. The moveable cutter can be moved relative to the axis of the bit to vary size of the holes.

Power bits are designed for use with high-speed portable drills. The single-cutter bit with spur and brad point, H, bores an exceptionally clean, true hole. The wing, or spade, bit, I, is equally fast but not as clean-boring. On most types the wings serve as cutters. Lacking spurs it shows less tendency to heat in stubborn woods, but may tend to clog in damp or resinous woods, especially in deeper holes. In such work you'll have to ease up and withdraw the bit frequently to prevent clogging and burning of the wood. The power twist drill, J, is similar to the twist drill for metals, bores fast and clean in hardwoods, but is not so suitable for very soft woods. It tends to drift in deep holes

FIG. 6

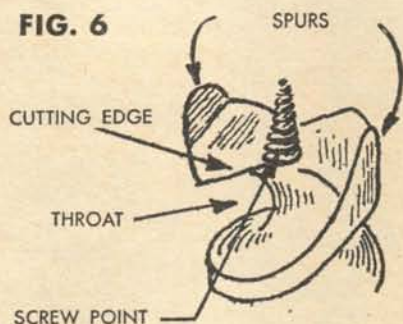


FIG. 7

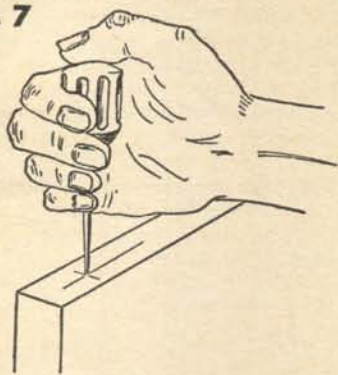


FIG. 8



## EASY TO REPLACE



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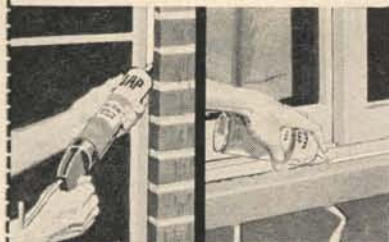
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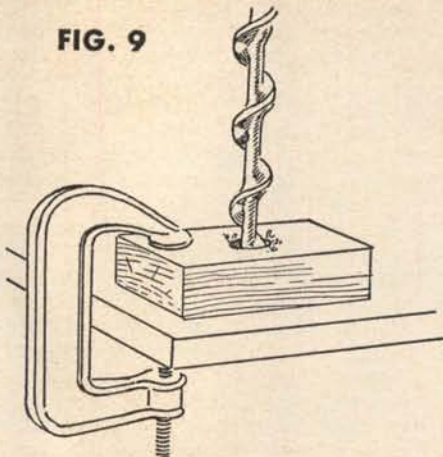
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**FIG. 9**



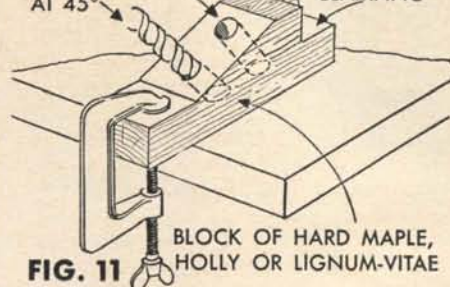
in woods with adverse grain, but still is of wide application in the home shop where you have need to drill duplicate holes fast.

All common wood boring bits are highly finished, and the main problem in care is to prevent them from rusting, and to prevent nicking or other damage to cutting parts. Figs. 2 and 3 detail simple practices that will keep bits in good condition. When you finish using a bit, place a few drops of oil on a piece of tissue, fold it and run the tissue down the flutes, oiling all parts. Discard the tissue after using. Or, saturate a clean cloth with fairly heavy oil, and after using, place in a screw-top glass jar. If your wood bits must be stored loosely, then cut short lengths from square or round stock, bore a hole in the end of the block with the bit to be stored and, after oiling the bit, turn it into the hole in the block, Fig. 3. This protects the business end of the bit from damage. As a final hint in bit

storage, drill spaced 1/4-in. holes in a block of hardwood and drop the shanks of power bits into the holes. This is safe, handy storage.

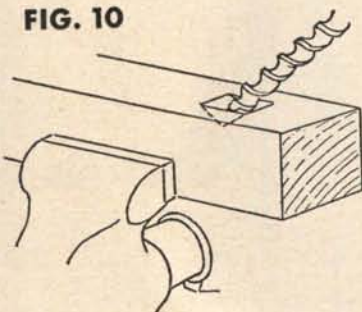
After long use and no other damage the head of a wood-boring bit, Fig. 5, requires sharpening. On auger bits with spurs this is best done with a special auger file, filing the cutting edges as in Fig. 4 and the lips as in Fig. 5. You proceed in much the same way in sharpening a Forstner bit, the expansive bit, the ship auger and the two power bits, H and I, Fig. 1. The electrician's bit and twist bit, E and J in Fig. 1, are sharpened by grinding lightly on a fine wheel. All sharpening operations require care not to overdo filing and not to alter the original shape of the parts. Don't permit a bit to become dulled to the point where it no longer works satisfactorily; touch up the cutting edges regularly, but never oftener than needed.

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CLAMPING  
AT 22½°  
AT 45°



**FIG. 11** BLOCK OF HARD MAPLE, HOLLY OR LIGNUM-VITAE

**FIG. 10**



When drilling with an auger bit, first awl-punch the hole location, Fig. 7. This provides a small hole for insertion of the screw point and gets you off to a good start. And, if you are using the twist bit, J, Fig. 1, you can get an accurate start by first drilling with a small diameter twist drill of the type used to drill metal. This will aid in starting the twist bit and hold it true through the wood.

Fig. 8 shows one way to start and bore a hole at an angle. Set the T-bevel blade at the required angle, awl-punch the hole center, then use the bevel blade as a guide to hold the bit true. An even more accurate method is to use a guide, as in Fig. 11. Use a block of hardwood for the guide. Drill the guide holes accu-



FIG. 12



FIG. 13



ately, using a drill press where possible. Often you can cut a V-notch in stock to aid in starting a bit at a steep angle, Fig. 10. This is effective where the notch will not be exposed in the finished work. Figs. 12 and 13 show how to prevent stock splintering when the bit breaks through. Bore until the screw point just breaks through, then invert the stock and drill from the opposite side. When using a large expansive bit, clamp scrap stock on each side of the work, then drill straight through.

When enlarging a hole with an auger bit, Fig. 9, drill the hole first in a block for a guide, then locate it over the hole to be enlarged. It will guide it straight; in this situation the lead screw has no stock into which it can pull.

Fig. 6 shows the head parts of a common auger bit.  $\Delta \Delta$



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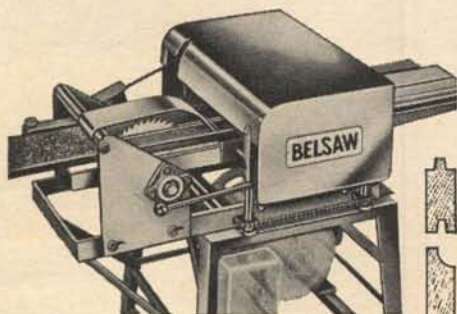
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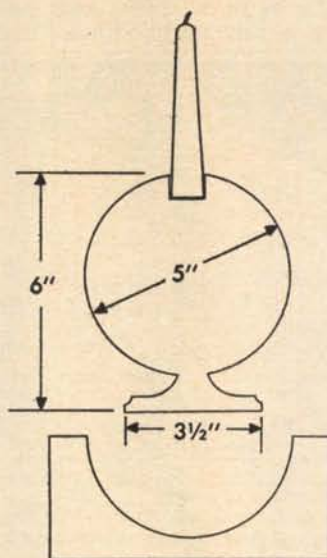
# Candle Holders



Unusual candles can be used in these unusual holders. They are 5-in. spheres turned with supporting bases.

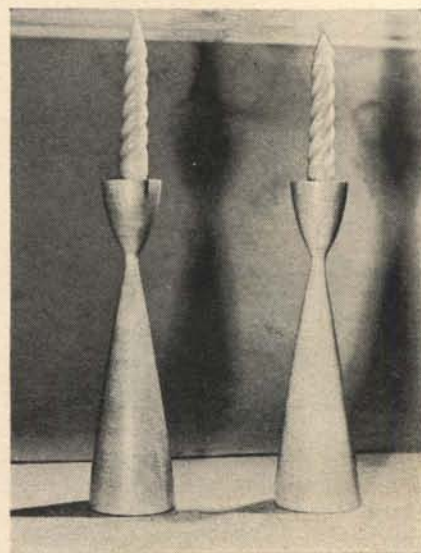
use a template cut from hardboard or plywood to check the trueness of the spheres. The template is made by striking off a half circle with a compass, then carefully cutting it out with a bandsaw, jig or coping saw. After turning to shape and size, including the base, sand smooth and apply a finish while the stock is still in the lathe. Finally, drill the top of the sphere to accept the candle cup. It can be made a force fit or glued in place with an epoxy-resin adhesive.

While bowling is a fine recreation, Colonel Ray M. Munger, (USA-Ret.), finds the game an excellent source for top-quality turning blocks. He collects damaged pins that are discarded by bowling alleys, checks each one carefully to make sure it is not split, then makes beautiful turnings such as these graceful, slender candle holders. It might be a little tricky to drill the hole for the candle after the turning is finished, so we would suggest squaring off the block end and drilling the hole first. A plug can be inserted in the drilled hole to permit turning the block between centers. Because the holders are quite tall we also suggest hollowing out the bottoms and fitting in a lead weight. Over the metal cement a felt pad.  $\Delta \Delta$

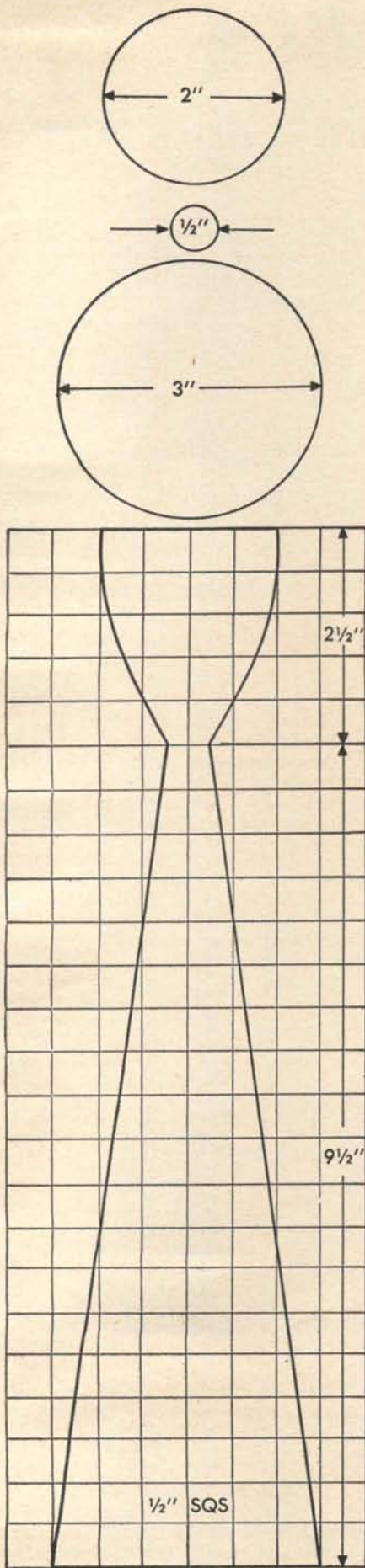


From the lathe of Claude R. Mowry come the spherical candle holders, turned as one piece with the bases. After turning, the tops are drilled out to accept candle cups or eyelets, (available from our advertisers who sell supplies and tools for the home craftsman). While a size of 5 in. is shown for the diameter of the spheres, this can be made greater or smaller according to personal preference. In any case, rough the spheres to shape, then

Slender and graceful, with a modern flair, these candle holders are turned from split-free discarded bowling pins.







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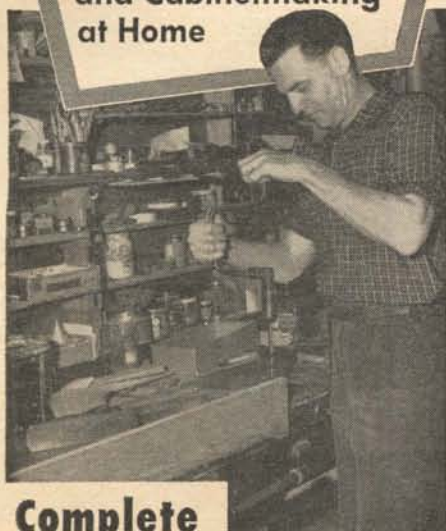
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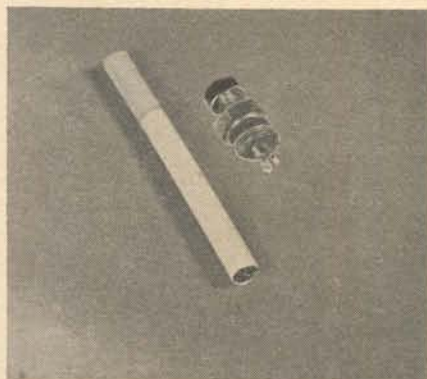
# ELECTRONICS

## in Home and Shop

Electronics have become more and more a part of everyday life. One of the big reasons is the miniaturization of many devices that once were just too big and bulky to be considered for installation in a home.

The heart of most of the devices that control electric power in a home is the "Silicon-Controlled Rectifier," (SCR), shown in Fig. 1 with a cigarette to show its relative size. Devices which use the SCR are called "solid-state power controls." The term is rather broad, as such control may be accomplished in several ways. Fundamentally it is control of electric power with devices similar to transistors that have no moving parts, and a long life expectancy. Solid-state control is done with very little power loss, thus the control device can be quite small, as is the SCR.

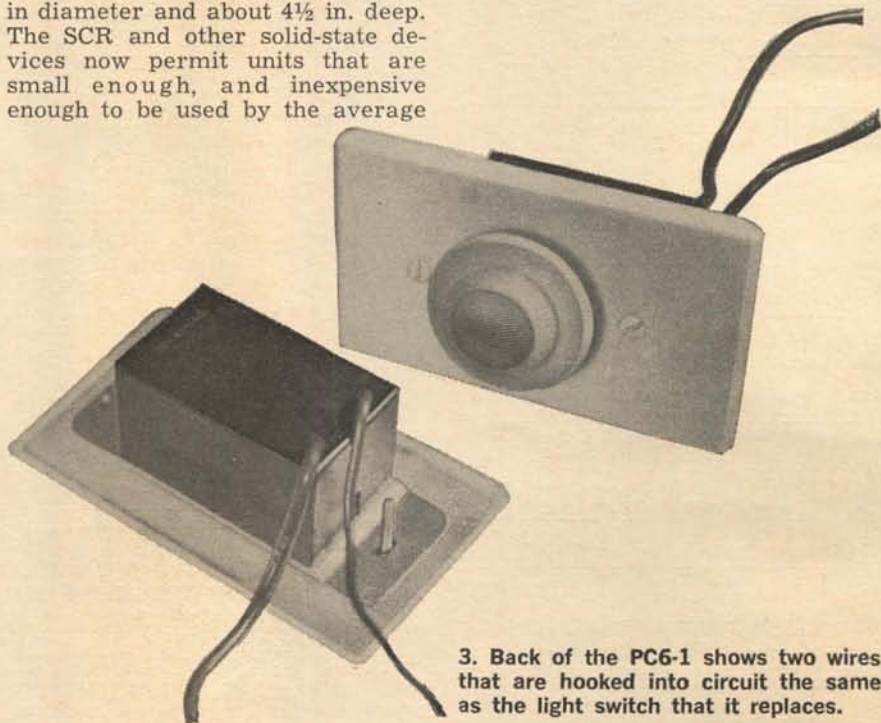
Light dimmers are not new, having been used in theaters for years. The older types, however, consisted of a rheostat that simply consumed the power not used by the bulbs. Such rheostats had to be quite large, and located where they were cooled by natural or forced-air circulation. Later, variable transformers were used to vary voltage. They did a good job, with little loss of power, but a unit to handle just three 150-watt bulbs was about 5 in. in diameter and about 4½ in. deep. The SCR and other solid-state devices now permit units that are small enough, and inexpensive enough to be used by the average



1. Heart of most devices that control amount of electric power is tiny Silicon-Controlled Rectifier, (SCR).

home owner. They also are simple to install. Figs. 2 and 3, and 4 and 5 show two types of light dimmers that can be installed in place of an ordinary switch. Caution: Do not use such dimmers for anything but incandescent lamps. Using such dimmers for fluorescent lamps, or where replacing switches that control wall sockets into which TV sets

2. PC6-1 fits in single wall box, has cover that is attractive and will blend with the decor of any room in home.



3. Back of the PC6-1 shows two wires that are hooked into circuit the same as the light switch that it replaces.



4. Somewhat larger than the PC6-1, requiring a double receptacle box, is the PC-10 1/M light control.

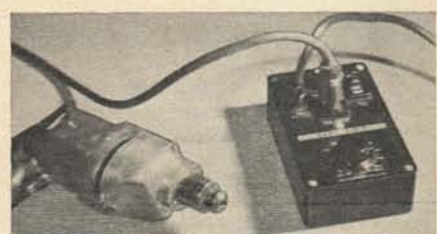
or appliances might be connected can cause damage to the dimmer and to the appliance.

Where a light is to be controlled from a table or night stand, the DM 805, Fig. 6, is ideal. This unit has a plug and socket attached, with an in-line switch. You simply plug the unit into the wall socket and plug the lamp into the unit.

Solid-state motor controls are now

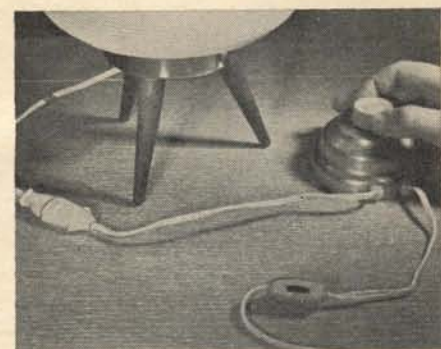
being incorporated in power tools, as in the drill in Fig. 7. The drill can be run slow for boring in concrete, fast for wood, medium for steel. For older tools you can purchase a motor control, as shown in Fig. 8. There are three types of electric motors: AC/DC, also called universal; AC only; DC only. Solid-state motor controls are intended to be used on AC/DC universal motors only. If you are in doubt about a motor, check the name plate. Soldering irons can be controlled with solid-state units, but soldering guns should not.

Solid-state controls eventually will be used for such jobs as low-loss, continuous-heat controls for electric ranges, and for varying the speed of motors used in automatic washing machines, thus replacing some of the expensive and complicated gearing now used.  $\Delta \Delta$



8. Tools not fitted with variable control can be plugged into unit such as SECO Vari-Volt to provide speed control.

5. Back of PC-10 1/M shows that it too has only two wires that are hooked into circuit the same as replaced switch.

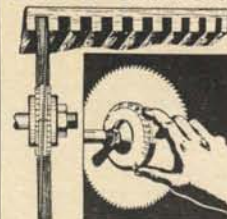


6. Where wall-mounted dimmer switch is not practical, or control must be near bed, SECO DM 805 is used.



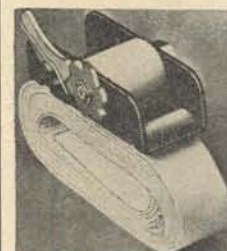
7. Some newer tools, such as this Disston  $\frac{3}{8}$ -in. drill motor, have variable control built right into the unit.

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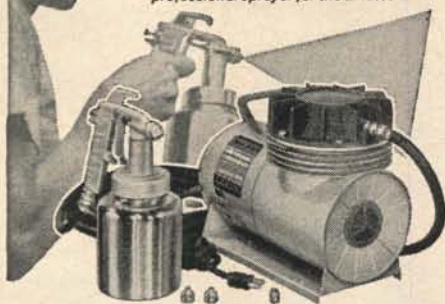
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## WORKBENCH

# Research Department

Each issue in this column we will choose questions on home and shop subjects from letters sent to us. Only those questions which have wide appeal will be answered here. Questions on specialized subjects will be answered by individual letter from the Research Editor's Desk.

Do you know of a machine or tool  
that could be operated by one man  
to raise 4 x 8-ft. sheets of plaster-  
board for installation on ceilings?  
**J. F. F., Long Island, N. Y.**



Yes, there are at least two such  
units made. Check with your local  
building-materials dealer. If he  
does not stock the item he will know  
where to get it. It is quite possible  
he can give you a better price than  
you would get by contacting the  
manufacturer directly.

Would appreciate advice on paint-  
ing the cedar siding on a cottage I  
am building in Northern Minnesota.  
Is there value in treating the  
reverse side of the siding before  
applying? Considering future weath-  
ering and repainting problems, is  
regular oil paint or some other type  
the best? Is it right that a second  
coat be put on the next day and a  
third coat the following summer?  
Is there value in painting the ends  
of the boards as I apply them?  
**O. A. E., Nebraska.**

Answering your questions in  
order:

1. Yes, unless you plan to use in-  
sulation with a vapor barrier.
2. Any house paint can be used on  
cedar siding, but you should apply  
a prepared undercoater as the first  
coat.
3. We do not understand this ques-  
tion. We know of no paint manu-  
facturer who recommends applying  
a second coat the following day.

You always are instructed to allow  
plenty of drying time between coats.  
Overnight can hardly be considered  
sufficient drying time, under aver-  
age conditions. Neither do we  
understand what you mean by "ap-  
plying a third coat the next sum-  
mer". This can be applied any time  
after the second coat is dry.

4. Yes, as a preventive to checking,  
although cedar siding does not  
ordinarily check, or split, at the  
ends under average weather con-  
ditions.

When we bought our home five  
years ago it had no rain gutters  
or downspouts. By the time we did  
install them the white asbestos-  
siding shingles had become dis-  
colored in some areas. Can we  
clean off the discoloration or must  
we paint the shingles?  
**W. W. H., Bridgeton, N. J.**

Yes, you can scrub the discolored  
shingles with a trisodium-phosphate  
solution, but we hesitate to suggest  
such a procedure as it is a tedious  
and rather messy job. If you decide  
to do it, use a trisodium solution of  
about a tablespoon to a gallon of  
water. Apply with a scrub brush  
or sponge, then hose the area im-  
mediately to remove all traces of  
solution. Wear rubber gloves and  
protect your eyes from splatter.

Have built a number of pieces of  
furniture and upholster them with  
foam rubber. Cannot locally obtain  
polyurethane foam, which I under-  
stand is longer-lasting, and more  
resistant to heat and light than foam  
rubber. Do you have a source?  
**G. L. S., Laramie, Wyoming**

It is true that polyurethane foam  
is longer-lasting than foam rubber,  
being more inert, and not as readily  
effected by light and heat. It also is  
true that local sources do not gener-  
ally carry all sizes and thicknesses  
of material. We suggest you write to:  
Foam Village, Westford, Mass.,  
01886, and ask for their free catalog.  
They list a great variety of thick-  
nesses and sizes of foam rubber and  
urethane, and can fill almost any  
request.



I have an old planer from which the nameplate has been lost. I need new knives, but do not know how, or from whom, to order them. The knives are 12-in blades, and have a date 1926 stamped on them, as well as the name Atkins.  
J. D., Lansing, Mich.

Knives for your planer, or surfer, are obtainable from Woodworkers' Tool Works, 222 S. Jefferson St., Chicago 6, Ill. Just give them the necessary information such as length, thickness and manner of fastening in the planer head. Also, whether the planer head is square or the round type.

What kind of solvent can I use to loosen parts that have been glued together with waterproof glue. I want to loosen the joints without damaging the varnish around the joint area.  
S. S. Z., Medina, New York.

We are sorry, but we can't tell you, as waterproof glues vary in ingredients. Write the manufacturer of the glue you used. He will know its content and can suggest a solvent. However, it is very doubtful if the glue can be softened without damaging the varnish.

We bought an old farmhouse and are stripping it to the original framework, which is assembled with wooden pins and hand-hewn timbers. The floor joists on the first floor have dry rot and must be replaced. What kind of lumber should we use for these beams, and also what kind for the joists in the second floor? The floors are pine boards about 20 in. wide and 1 1/4 in. thick, which we intend to take up, refinish and reinstall.  
A. S. C., Syracuse, New York.

Unfortunately you do not tell us whether you intend to duplicate the originals which probably were hand-hewn from oak or elm, the latter wood less commonly used. If you do intend to duplicate the originals, then, of course, this is a job for a local craftsman. Otherwise you can use stock joists such as would be supplied by your local lumber dealer.

You can purchase old timbers salvaged from homes that have been wrecked in some parts of the East. There are a number of dealers in these materials. One dealer who lists, among other salvage, hand-hewn beams for floors and ceilings, is I. M. Wiese, RR #3, Southbury, Conn. Of course, due to relative scarcity, such salvage will be comparatively expensive.

Can I paint my stucco house? It appears that there are chips of granite or other stone in the stucco and I am wondering if paint will stick to them. Also, how should I clean the stucco before painting? The material is at least 40 years old, but in good shape, just dirty.  
L. A. T., Aurora, Ill.

Painting stucco is no problem if the surface is still in good condition. Simply wash it down to remove dirt and other debris and then apply a masonry paint made especially for the purpose. Such paints are available from your local paint dealer or from mail-order houses.

I'm looking for a source for left-hand taps and dies. There is no local source for these tools; could you give me the name and address of a company that could supply them?  
K. E., Denver, Colo.

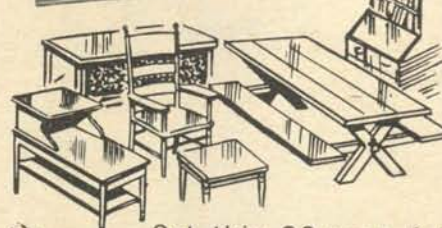
Write to the Greenfield Tap and Die Corp., Greenfield, Mass., for information on where to buy left-hand taps and dies. They do not sell direct to you, but they can direct you to a dealer who can supply you with the tools.

Please advise the best way to remove grease spots from the terrazzo tile floor in our kitchen. Is there a commercial product on the market for this purpose?  
F. H. S., Florida.



If you are sure the discoloration is due to grease alone, then it should yield to a fairly strong solution of any household cleaner. Or, make a cleaning solution by mixing trisodium phosphate in the proportion of a tablespoonful to a gallon of water. Do not put your hands in a strong trisodium solution; wear rubber gloves and protect your eyes from spatters.

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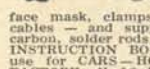
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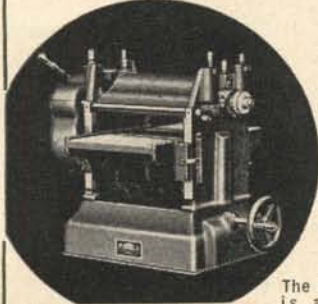
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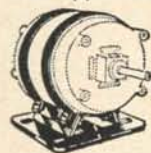


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Several years ago I built a brick patio at the rear of our home. Most of the patio is in the shade of a large oak tree. My problem is that a dark green and a brownish growth has appeared on the bricks which I cannot seem to eliminate. I have tried detergent and muriatic acid, but the growth comes back. Is there some chemical I could use? E. L. T., Decatur, Georgia.



It is most difficult to control moss growth on any form of masonry. There are chemicals, but we cannot recommend their use in or about the home because of the hazards involved. It is just possible that you could trim the oak tree to permit more light to strike the surface of the patio. This might do it, as moss does not thrive in direct sunlight, even if exposed only during a portion of the day. No doubt this could be done without harming the tree in any way.

I do not know where to find one of those glass balls that were used in the claw feet on the legs of old piano stools and on tables. The sphere would be about 4 in. in circumference.

J. K., Hamilton, Montana.

You do not name the manufacturer of the piano or stool; usually the maker's name will be on the product. However, it is extremely doubtful if a glass ball of the dimensions you give—you say "circumference" but do not give diameter—can be located, as manufacture of such items long since has been discontinued. Sometimes a replacement for such an item can be found in antique shops. If not, contact Ball and Ball, Manufacturers of Antique Brasses, Whitford, Pa. This firm makes some replacements of antique items to order. A single, custom-made item would, of course, be relatively expensive. If you do contact them, give them full information such as name of piano, stool manufacturer, size of ball and how it is mounted.

About six months ago I laid asphalt tile on the concrete floor of my basement. When the room was furnished as a summer kitchen we placed floor mats of heavy-duty plastic in areas where there would be heavy traffic. In the areas covered by the mats a brown fluid seeps from between the floor tiles. The basement is watertight so I cannot believe that condensation is causing the problem. J. J. C., Staten Island, N. Y.

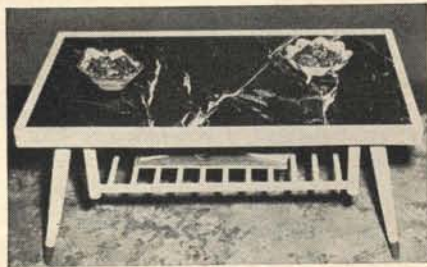
Sorry to have to disagree, but the problem definitely is caused by condensation. The presence of the condensate over a period of time has affected the tile cement, causing the tile to "float". A similar condition has resulted from furniture in basement recreation rooms, especially those items that sit low to the floor, or on the floor, preventing any air circulation. You will have to replace the tiles in the damaged area, and get rid of the plastic mats. To minimize future problems we suggest installing a fan in one of the windows, then opening another window, or door, to allow air to circulate through the basement area.

Some of the 2 x 12 floor joists in our 4-year-old home are developing a fungus-like substance, (a sample is enclosed), and I am wondering if this could be the start of dry rot. The basement is concrete block, situated in sandy soil and condensation and moisture have never been a problem. The basement has good cross ventilation. J. U. L., Wis.



The enclosure in your letter is that of a fungus growth which attacks wood exposed to a continuing state of dampness. Your basement may appear dry, but actually the humidity level is quite high during the summer months. You can slow the advance of this deterioration by painting the surface with a wood preservative containing "pentachlorophenol"—"penta" for short. It can be obtained from most paint stores.





## "MARBLE-TOP" COFFEE TABLE

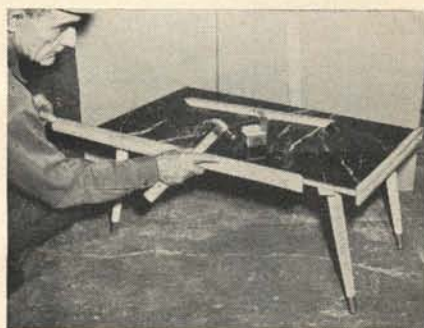
HAROLD JACKSON

Furniture for a recreation room or family room must be attractive, easy to clean and sturdy. This coffee table combines these characteristics with simplicity of construction and the added feature of a magazine rack. The latter is an often-needed, but seldom-included feature of family-room furniture.

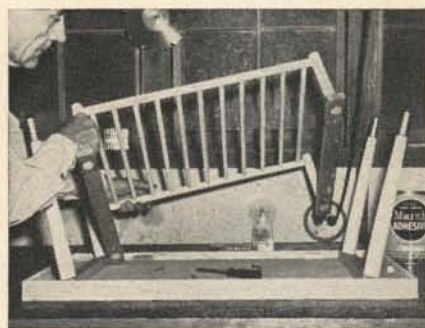
The table top is a rectangle of  $\frac{1}{2}$ -in. plywood, over which can be cemented a scrap of marble-design plastic-surfaced wallboard, or a piece of plastic laminate, (Micarta, Textolite, Formica, etc.). The table-top edges are trimmed with L-shape members, made by cutting rabbets in lengths of stock as indicated. Make two shallow saw cuts the length of each piece as decoration. After cementing the laminate

to the plywood, the strips are mitered and fitted to the top assembly, being held with glue and finishing nails. Use two glue blocks on the underside of each side and end of the top to accept the nails. Legs for the table are turned from  $1\frac{1}{4}$ -in. closet pole dowels, to the dimensions given. They are fitted in two strips beveled to make the legs splay. If your bits are not large enough to drill to  $1\frac{1}{4}$  in., shoulder the tops of the legs to  $\frac{3}{4}$  or 1 in. and drill the holes in the cross pieces to suit. Attach the leg assemblies with glue and screws to the underside of the table.

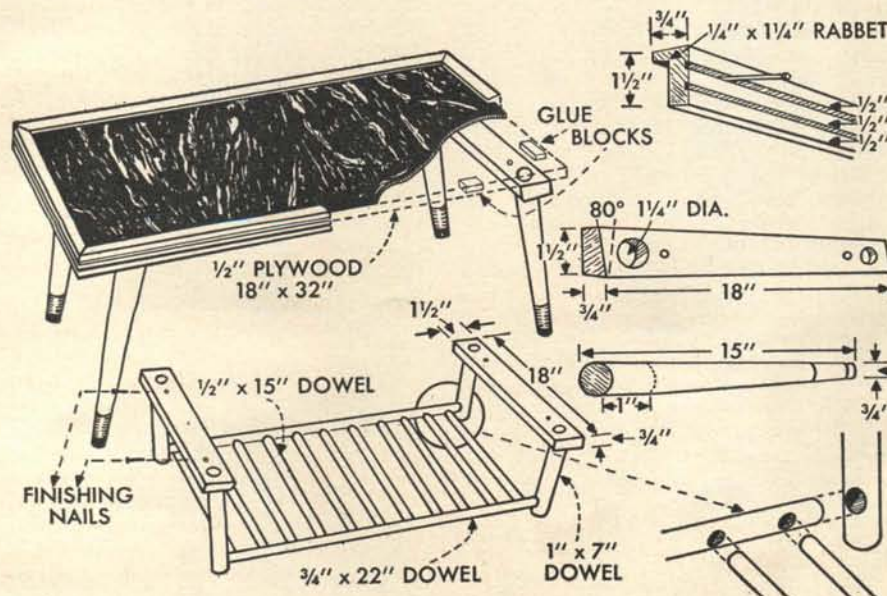
Make up the magazine rack as indicated, then attach it with glue and screws to the underside of the top. If a light color of "marble" is used, finish all wood members in a dark color. If a dark color of marble is used, finish all wood members in a light color.  $\Delta \Delta$



After legs have been fitted to top, trim strips are attached. Strips are rabbeted, grooved, L-shape pieces.



Final step is to attach magazine rack by driving screws up through rack members into underside of table top.



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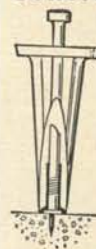
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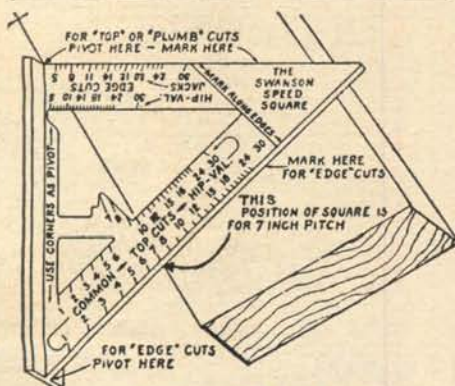
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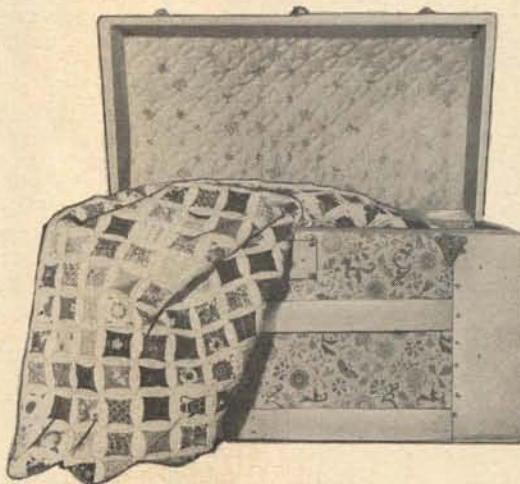
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## WORKBENCH

# Women's Page



## Trunks To Storage Chests



### CHERYL BROGDON

Want an unusual and attractive storage chest that will cost very little? The answer is to use an old trunk. If you can't find one in the attic or basement, look in shops that sell second-hand furniture or check furniture auctions.

The first step is to remove the old lining, which quite likely will be musty and damp. If the trunk is metal, use a block of wood on one side, a hammer on the other to flatten any dents. Next, apply a water-soluble paint remover inside and outside the trunk. When it has loosened the paint, wash it off with a garden hose. A stiff-bristled brush may be needed for embossed areas. After washing, let the trunk dry for at least 18 hrs. Now, sand all rust spots on metal, rough spots on wood. If there are nail holes or other damage, use wood putty on wood, metal "putty" on metal.

After all repairs have been made, including filling holes, nicks and dents and replacing any wooden

ribs or other members that have been broken, sand all surfaces smooth. Apply an undercoater to wooden trunks, a metal primer to metal trunks. A finish coat then is applied. You now may wish to add decals to the trunk, or to highlight embossed patterns or figures.

When the paint is dry, the lining is the next job. Lining fabrics can be quilted drapery material, sateens or cottons that are commercially quilted and available by the yard. Velvets and velveteens also can be used.

Mrs. Hal Sundvahl, Tulsa, Oklahoma, shown converting a trunk, measures the inside of a trunk, then cuts paper patterns to fit. From these she makes cardboard patterns. The fabric is glued to the cardboard; this simplifies applying the lining to a trunk. Cardboard is used in the top of a trunk if it is flat, but a curved or contoured top is more easily fitted if the material is glued directly to the top itself.





Important in restoration of a trunk is to apply a quality paint remover; use according to included instructions.

Trims such as braid and rickrack can be used to cover seams and edges of material glued inside a trunk. If a trunk has a tray inside, it too can be covered with fabric. Check to be sure that the tray will fit in the trunk after it has been covered; if it will not, you will have to settle for painting the tray.

While we have mentioned just painting, there is no reason why "antiquing" cannot be used on a trunk. There are a variety of antiquing materials on the market, several being in kit form. You can choose the colors to be compatible with the decor of the room in which the chest is to be used, or the antiquing can match or contrast with the lining material. Metal fittings, such as hinges, hasps and the like can be buffed to a high polish. If any of the hardware is damaged or does not work properly, it should be replaced. Hardware for trunks



After removing the paint, the wood—or metal as in this case—is scraped and sanded to remove any rust spots.

can be obtained from luggage-repair shops, or from the hardware sections of large department stores or mail order houses.  $\Delta \Delta$



Carefully measure the inside of the trunk in preparation for installing a new lining in place of the old.



Material is cut to fit pattern made from paper. Cardboard also cut from pattern is used to support material.



White glue is used to apply the lining, and also to apply braid, rickrack or other trim on edges, seams of material.

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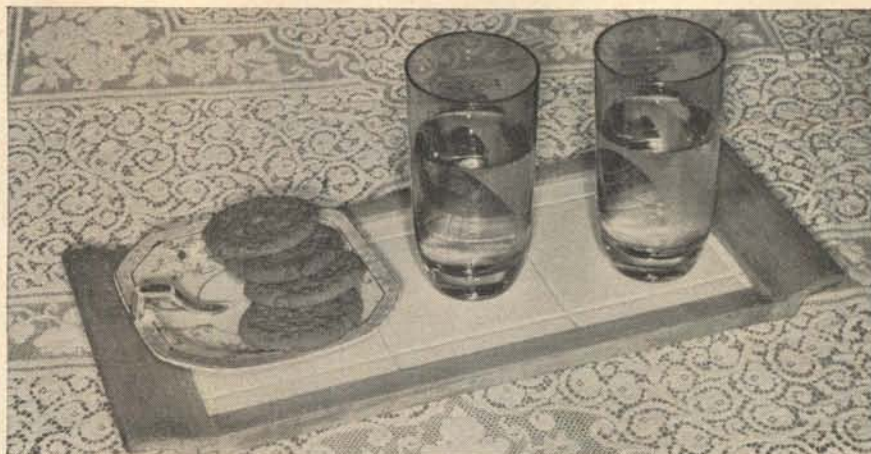
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3250 N. Green Bay Ave., Milwaukee 12, Wisconsin



This small serving tray is designed so a number of duplicate ones nest together snugly, take very little space.

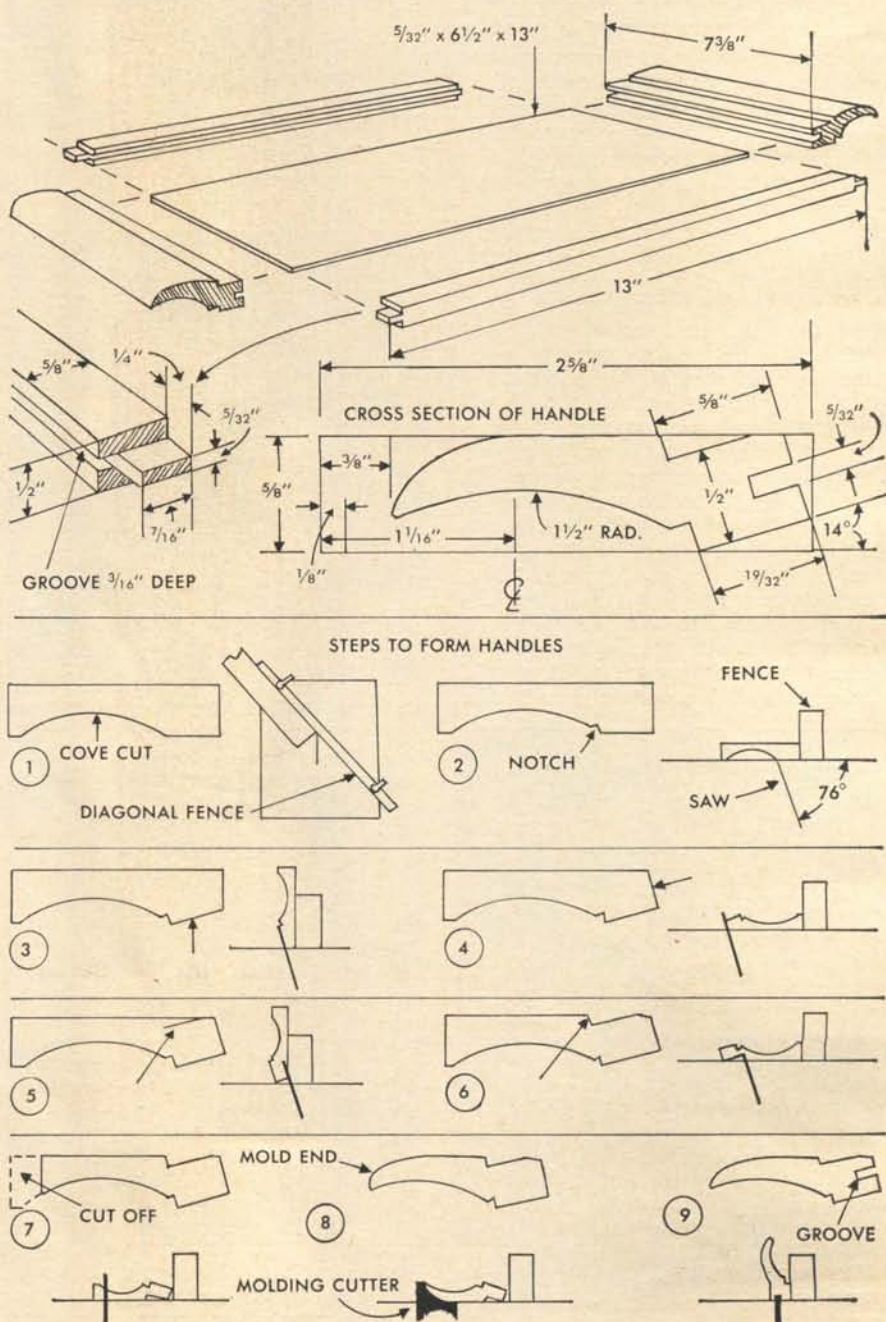
## SERVING TRAY



You can assemble this serving tray in an evening. If you do the work on a circular saw, it won't take much more time to cut parts for several. A set of four makes a fine gift. The wood should be close-grained hardwood. The bottom may be pre-finished tileboard  $\frac{5}{32}$  in. thick, or other suitable material up to  $\frac{1}{4}$  in. If you use the latter, the grooves and tongues in the wood pieces are increased to this size. All parts should fit together snugly and are joined with waterproof glue.

This project is an exercise in cutting molding. Figs. 1 to 9 show the progressive steps in handle formation. In making the cove cut, the angle of the diagonal fence, which is held with C-clamps, determines the radius. Use a piece of softwood first to determine the proper radius. Mark the center of the cove on the stock  $1\frac{1}{16}$  in. from one edge. The first cut removes just enough wood to enable you to see if it's on the marked center. If not, readjust the fence. Successive cuts are about  $\frac{1}{16}$  in. deep. Stop cutting  $\frac{1}{8}$  in. from the edge to leave a flat that provides the necessary support for making other cuts.

After completing the cove cut, set the saw to an angle of  $76^\circ$ , Fig. 2. This angle is kept until the vertical cut in Fig. 7. By presenting the work to the saw in different positions, as in Figs. 2 to 7, the handle is cut to its finished shape except for the curved molding cut, Fig. 8, and the groove, Fig. 9. For the cut in Fig. 5, the recess in most saw fences will provide the necessary clearance as the blade barely projects above the table. For the notch in Fig. 2 and groove, Fig. 9, make separate cuts to make a wider one. Finish the wood with clear lacquer or spar varnish.  $\Delta \Delta$





## Book and Booklet Reviews

**HOW TO SELECT AND INSTALL  
ELECTRIC MOTORS**  
Sears, Roebuck and Co.,  
Department 703PP, 925 South Homan  
Ave., Chicago 7, Ill. Free.

Designed to assist in the selection of the proper electric motor for any need, this 32-page pamphlet discusses the various kinds of single and multi-phase motors available. Covered are special applications for sump pumps, oil burners, belted fans, washing machines and other appliances.

Charts are provided that give standard N.E.M.A. frame dimensions, wire-load ratings, driven-pulley speeds and measuring instructions for V-belts. Information is provided to aid in correct motor mounting and maintenance that will add years of life to a motor and required electrical devices.

**FUN PROJECTS FOR DAD  
AND THE KIDS**  
Arco Publishing Co.,  
480 Lexington Ave., New York 17, N. Y.  
\$1.95 paper cover, \$3.50 cloth cover.

Every Dad who has youngsters 12 or under, and every grandfather who has, or expects to have, grandchildren in that age span, should have this book in his library. Mr. Stiles has sketched dozens of ideas in the pages of this book to show how "imagination" toys are designed and built. Imagination toys are the things we played with before television and supervised sports activities took away the fun of being kids. Described are tree houses, pirate ships, play houses, tanks, boats, floats and other glorious playthings that a Dad or Granddad can make for a youngster to help him learn about having fun. Yes, there is a rocket ship too.

**EICO 1964 CATALOG**  
Eico Electronic Instrument Co., Inc.  
33-00 Northern Blvd., Long Island  
City 1, New York. Free on request.

Over 200 items, in kit and pre-wired form are listed in this latest catalog. If you are interested in anything electronic, from a tape recorder to a complete hi-fi system, and want to save 40 per cent or more on quality components, we strongly recommend this catalog. All the items listed are top quality, and the kits are designed so that even a person completely unfamiliar with electronics can build one. Pre-wired components and units also are available.

**THE COMPLETE BOOK FOR GARDENERS**  
Edited by Rachel Snyder, Editor-in-Chief, Flower and Garden Magazine  
(Available by mail, see ad in this issue. \$7.95.) \$9.95 retail.

The editor of this very complete and comprehensive book is not only an excellent writer who makes all her subjects interesting to read about, but is a real do-it-yourselfer in both flower and vegetable gardens.

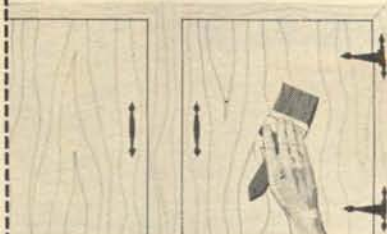
The book begins with an explanation of the various growing "zones" of weather in this country, and explains why some plants can be grown in some areas, but not in others. If you have moved from one state or area to another, this book explains what changes in plant selection are necessary if you want a successful garden. How to plan your landscaping is another section of the book; and both small and large yards are covered. Control of plant diseases, how to minimize insect damage—using not only chemicals, but enlisting the aid of frogs, birds, even other friendly insects—how to hybridize, graft and bud are described in detail. Construction of patios, walks, walls, fences, screens, cold frames, hotbeds and workshops also are included.

How to build and plant garden pools is another chapter in this fascinating volume. Want to keep yard maintenance to a minimum? The answer is in this book. There are 17 pictures in full color, 215 black and white photos and dozens of line drawings. A gardening bookshelf in one volume, and a real bargain at the price, we recommend this book to anyone who has a yard and garden, is thinking of having one, or who just likes to read about them.

**ALL ABOUT THE U. S. S. R.**  
Cross World Books and Periodicals, Inc.,  
333 South Wacker Drive,  
Chicago, Ill., 60606  
Free on request.

Listed in this interesting catalog is everything that has been published in English in the Soviet Union. If you want information about the Russians as written by them, you will be fascinated by the listings of available children's books, film strips, books by Khrushchev, books on teaching and learning the Russian language, their politics, science, theaters and so on. If you want a better understanding of any phase of the lives of our communist enemies, as described by them, we suggest you get the catalog and choose the subject in which you are interested.

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# Refinishing Clinic

## ANTIQUING KIT



Now available is an antiquing kit that can be obtained with any of six "Provincial Color Glazes", including pink, blue, olive, gold, red and white.

A big advantage of the new kit is that it does not call for removing the old paint or varnish first, even if it is marred, checked or fogged. You first paint the article with the off-white undercoater supplied, then brush on a coat of translucent color glaze, and third you wipe it with cheesecloth to produce subtle shadings. A pale tint of color covers flat surfaces and high points of carved designs, while deeper color remains in crevices of carved areas, emphasizing design.

Each kit contains undercoater, color glaze, a 1½-in. brush, a flat artist's brush, three grades of sandpaper, cheesecloth and a book of instructions. Kit costs about \$5 wherever Martin-Senour paint is sold.





## FOUR-YEAR FINISH



A new wood finish that never needs waxing is being marketed with a 4-year consumer guarantee. Called Zip-Guard, the material is a urethane product and can be applied on exterior or interior surfaces with no priming. It has been used successfully as a finish and sealer for concrete floors and for marine use and is recommended for floors, cabinets, paneling and furniture. Redwood, cedar and cypress which are oily and sometimes difficult to maintain can be permanently sealed and finished with this material. A 16-page redecorating and refinishing book is offered free. Write Star Bronze Co., Box W-13, Alliance, Ohio.

## FINISH Updates Table

This well-built, solid walnut table once had a dark, glossy finish. But after quite a few years of marriage and several children almost everything had happened to it. It had scratches, dents and water stains. The little varnish left was streaked and the legs were scuffed and marred. Our solution was to use a quality paint remover and strip the table down to bare wood. We then used fine sandpaper and steel wool to smooth all surfaces. A wet cloth and a hot iron smoothed dents. Filler was used to fill in tiny cracks and scratches. Two coats of clear

furniture wax gave the top a soft, mellow finish. The legs are painted black. We now use the table with new blonde furniture. The top truly is blonde, while the black legs have a "wrought-iron" look.

## Dust-Removing Cloth



Much like a tack cloth, yet without the usual problems of excess stickiness and rather quick hardening when exposed to the air, this Crystal Cloth picks up, holds and removes dust and surface particles with an easy wiping motion.

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## New Paint Remover



Long famous for their clear finish that does such a beautiful job, the Deft Co. now announces that they have a paint and varnish remover called "Remove." It loosens paint films quickly and scrapes off cleanly. It is heavy-bodied so can be used on vertical and overhead surfaces. The material also works on epoxy and urethane finishes which are tough to remove. Remove is available in gallons, quarts and pints. For further information write to Deft, Inc., P. O. Box 2216, Torrance, Calif.



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# CARVING A LION

ALEXANDER van ELST

*(Mr. van Elst, a citizen of Unterammergau, Germany, is a member of the National Wood Carvers Association. His work was called to our attention by a fellow member of NWCA, Mr. Edward Gallenstein of Cincinnati, Ohio.)*



1. No drawing is given of top view; check the photos and carve to suit. Allow ample stock for mane and legs.



2. Natural place to start carving is mane; front legs also can be carved and blended into mane as indicated.



3. Mouth and muzzle can be tricky. If you are in doubt about features, check photos of lions in magazines or books.





4. From mouth and muzzle, carving flows back to ears that are just in front of mane, above and outside eyes.



5. With front portion finished, move back along body, carving back and rump; legs and tail also.

6. From back you work around to stomach, also finishing rear legs and tail. Be careful when carving tail.



7. Original lion was mounted on black-painted base. Lion itself was given several coats of wax, buffed with brush.

This lion carving is an excellent project for both beginner and advanced craftsman. The beginner can block out the animal's body and stylize it to suit, while an advanced carver can add all the details he wishes.

Start by sawing out the two body halves from pine or basswood, using 2-in. stock. Enlarge the squared drawing to make your patterns. You may wish to make the lion bigger than the original, but a smaller version would be quite difficult. Glue and clamp the halves and allow ample time for the glue to set completely.

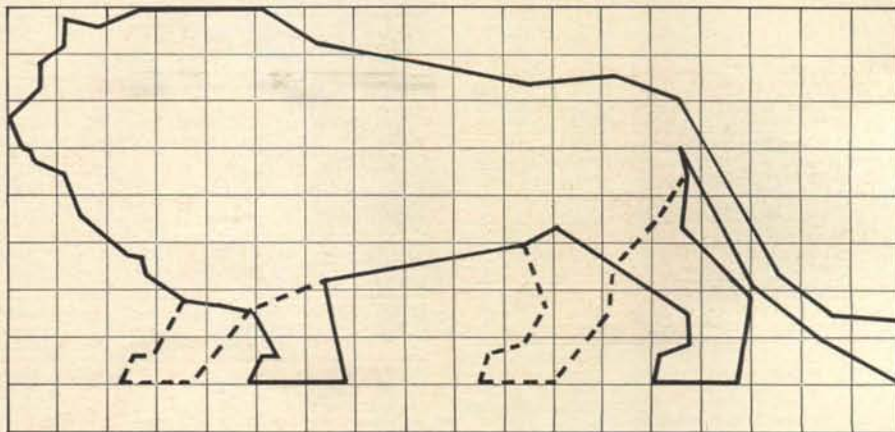
We have not given a pattern for the top view of the body. Be extremely careful if you saw the sides of the body, as you easily can saw away too much and have no stock for the rear legs. For beginners we suggest using a knife to shape the sides of the body, rather than a saw. Note in Fig. 1 that a pencil is used to mark the outline of the top of the back; also note the projecting right rear leg.

After shaping the body roughly,

start finish-carving with the mane, Fig. 2. The front legs can be worked at the same time. When the mane and legs are pretty well formed, work on the muzzle, Fig. 3, and the mouth. Work back from the muzzle and mouth to the ears, Fig. 4. From there, Fig. 5, carve along the back. Work from the back down around each side to the stomach, as in Fig. 6. While working on the back and stomach

it will be natural to flow the carving into the rump and rear legs. Be cautious when you are working on the tail; a wrong move and you will have to glue on an extra piece to correct your error.

The original carving was fitted on a black-painted slab of wood as indicated. The lion itself was given several coats of paste wax and buffed to a sheen with a brush, Fig. 7.  $\triangle \triangle$





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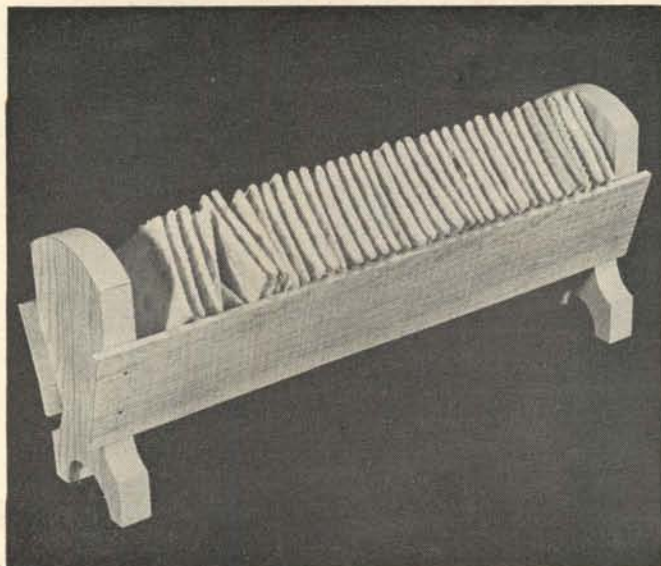
MAKE \$46 From Square Foot Plywood; Jigsaw necessary. Free Information. Woodarts C-7, Bridgewater, Mass.

FAIRYLAND BIRDHOUSE. Blueprint plans, instructions and actual photograph. \$1.00, cash or check. R. Doczy, 54263 Northern, South Bend, Indiana 46635.

102 FULL SIZE Jig Saw Patterns only \$1.00—Pattern Service, Medway, Mass.



# CRACKER CRADLE

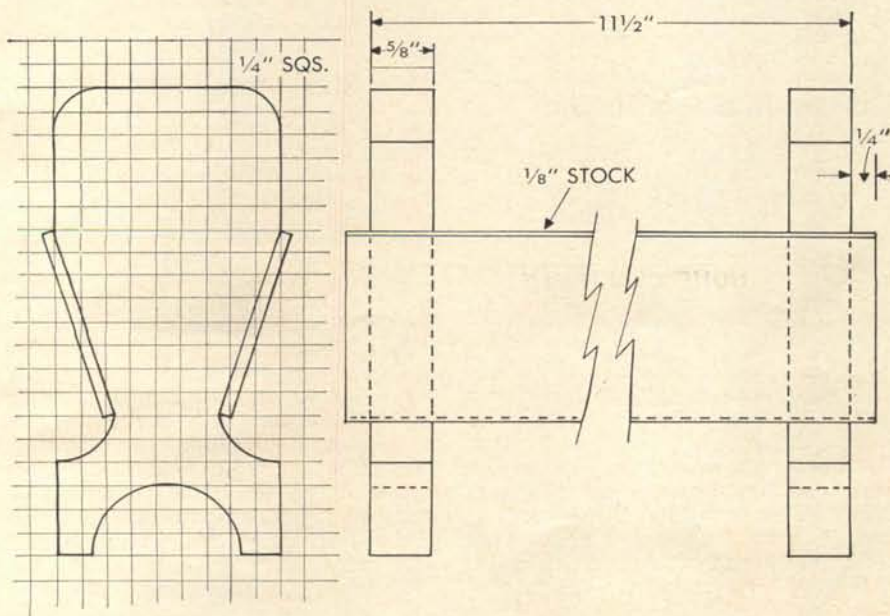


## (Hand-Tool Project)

This attractive and useful cracker cradle can be made from scraps salvaged from other woodworking jobs, or from wood obtained from fruit crates. Length of the tray can be varied. You might want one a couple of feet long if you serve a variety of crackers and dips for large groups of people. A beginning craftsman might make them in several lengths, then show them to neighbors to see if any are interested in buying the cradles in a

particular length. The cradle shown is not finished; a clear finish or a bright-colored enamel will enhance the appearance.

While the cracker cradle is a simple project, use care in cutting and fitting the parts. Sand each one carefully and round all edges. Glue and brads can be used for the assembly, as indicated, or roundhead brass screws can be substituted to give the cradle a touch of decoration. △ △



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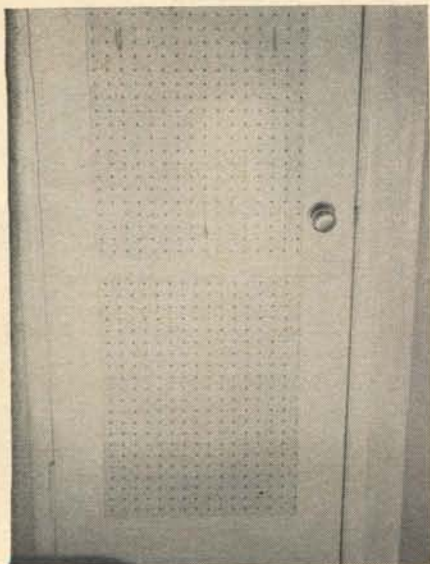
# SHOP TIPS

## "In-Between" Shelves



Extra shelves for storing small items such as salt and pepper shakers can be located between the existing shelves in kitchen cabinets. Cut  $\frac{1}{4}$ -in. Masonite for the shelves, making them no longer than 12 in. The brackets for the shelves are L-shaped lengths of  $\frac{1}{4}$ -in. brass or steel rod. Thread one end of each rod to accept a nut. Slip the rods through holes near the corners of the shelves, then through holes drilled in the existing shelf above. Counterbore the holes in the existing shelf so the nuts do not project.

## Door "Inlays" Hold Hooks



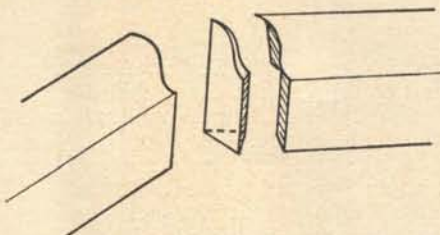
Closet and bathroom doors often have one or two clothes hooks, but they seldom are at the right height for everyone or every item. The solution is to attach "inlays" of perforated hardboard, spacing the board out slightly so that hooks of various kinds and sizes can be located at the heights required. *G. R. Cannady, Torrance, Calif.*

## Simple Centering Tool



If you do not have a combination square at hand for centering the ends of round stock, here is an inexpensive substitute. It is an L-shape corner brace to which a piece of flat steel is attached. One edge of the strip bisects the angle formed by the brace. Clamp the strip in place, then drill two No. 36 holes through both members. Tap the holes in the brace for a 6-32 screw, and enlarge the holes in the strip with a No. 26 drill to fit 6-32 screws snugly.

## Fitting Molding



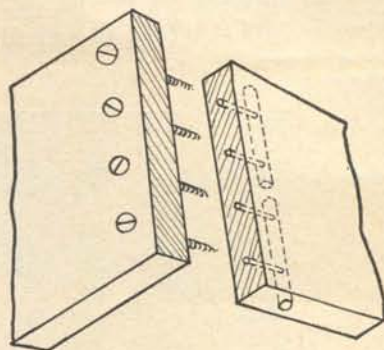
When fitting molding to an inside corner, only one member need be cut. That one first is cut at 45 deg., the face side being the short side. The resulting profile then is cut with a jig saw or coping saw to produce an outline that will fit perfectly against the face of the molding on the adjacent wall. *Lestie Herron, York, Nebr.*

## Curtain-Rod Tool Holder



Flat, telescoping curtain rods can provide excellent, ready-made strips for use as tool hangers. The hooks shown were bent from nails, the heads big enough to lock in the strip, yet free enough so they can slide in the rod. Each telescoping rod has two sizes of rod, so use one for light duty, the other heavy duty, and select the nails in a size to suit the job.

## Dowels Hold Screws



Much more holding power can be provided for wood screws driven into end grain by using dowel anchors. Drill a hole crosswise to the end grain and glue a dowel in place. Locate the dowel to suit the length of the screws used, so the screws will penetrate the dowel completely. Pilot holes should be drilled through the dowels.

## Wire-Solder Dispenser



No need to pry open a rusty tin of wire solder every time you use it. Having the end of the coil project from the tin through a  $\frac{1}{4}$ -in. hole in the side makes it ready for instant use. Provide a wooden sleeve—drilled dowel—so the coil will rotate freely. The sleeve is centered in the can and held with a machine screw. To prevent the solder from catching on the sharp edge of the hole, press in a brass eyelet.

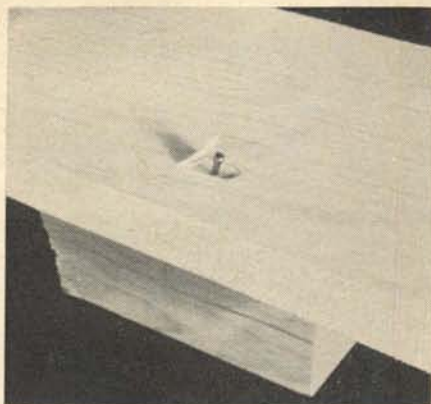
## Drill Straightens Wire



A quick and handy way to straighten lengths of wire of thicknesses less than 12-ga. consists of gripping one end of the wire tightly in a vise so that it extends horizontally, and chucking the other end in a hand drill. Then, while pulling the wire taut, rotate the drill a few times until the wire has twisted straight. Loosen the drill chuck from the wire first while holding the wire from bending with one finger, then remove the wire from the vise.

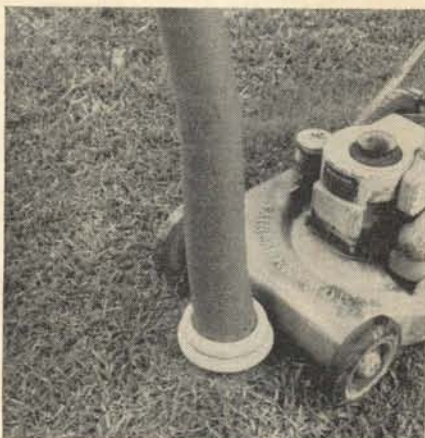


## "Hiding" A Nail



While it is an old cabinetmakers' trick, here is a stunt that some of our readers may not know, and others may have forgotten: Use a small, sharp wood chisel to lift a sliver of wood where a nail is to be driven. Drive the nail in the cavity formed and set it below the surface. Finally, the lifted sliver is glued down again. Done carefully, this makes an "invisible" nail.

## Tree Protectors



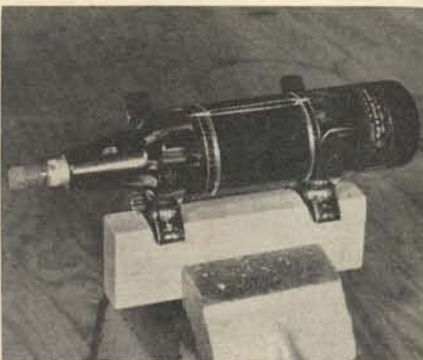
Small rubber tires, salvaged from discarded tricycles and other wheeled toys make fine guards to protect trees from lawn-mower damage. Cut through the tire and the wire insert, then fit the tire around the tree. The tension of the wire will hold it in place.

*G. Brinkman, Okawville, Ill.*

## Gluing Dowels In Blind Holes

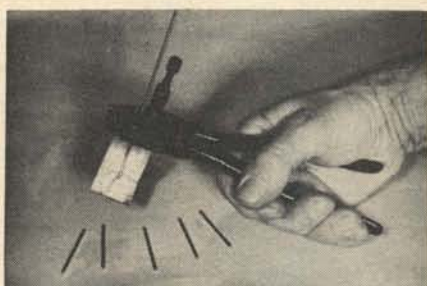
To release air and glue that collects under a dowel being driven into a blind hole, grip each dowel with a pliers and cut a lengthwise slot with a bandsaw or jig saw. You also can do this by holding the dowels lightly in a vise and using a hand saw.

## Holder For Grinder



When using a small hand grinder it often is easier to manipulate the work against the wheel while the grinder is mounted horizontally, rather than to handle the grinder. For this purpose it is handy to have a block fitted with two large spring clips, permitting the grinder to be slipped in place or removed instantly. When used, the block is gripped in a vise.

## Stop On Side Cutter



When cutting a quantity of identical lengths of wire on your side cutter you can save time by fitting it with a simple stop bent from sheet metal. Bend the metal to a Z-shape and fasten one end to the top jaw of the cutter with a small C-clamp.

## Filter Tips

Do not discard furnace filters after they have done their job and been replaced with new ones. The metal grill on either side can be used for many projects. I cut one of these grills in half, bent it around a 3 x 3-in. wooden base, attached a handle and used it as a suet holder for feeding winter birds. The metal also could be used as a decorative grill in a frame for a cabinet or other piece of furniture. The fiber glass portion of the filter can be used for insulating small items, or in the bottom of a charcoal grill to protect the fire pot.

*L. J. Davis, Colorado Springs, Colo.*

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## IN THE NEXT ISSUE

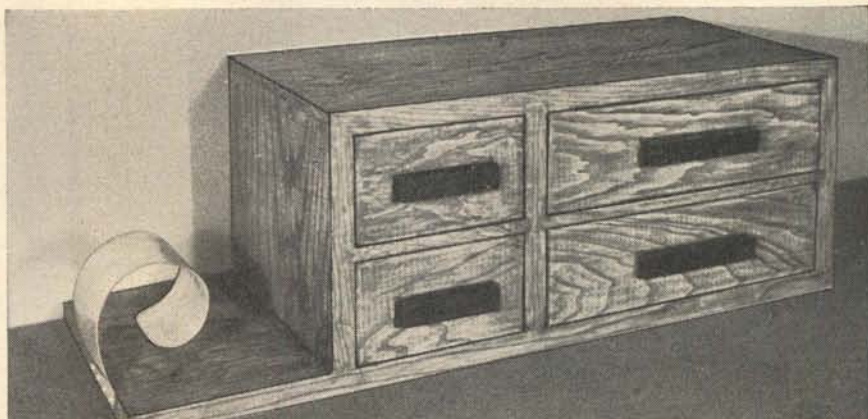
Enlarge A Family Room  
American Windsor Chair  
Using Wood Chisels  
Ranch-House Bird Feeder  
Child's Chair And Settle



**"I'm through with the jointer,  
Dear, DEAR, DEAR!"**



# Desk-Top File Cabinet



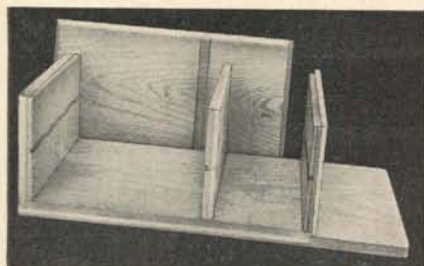
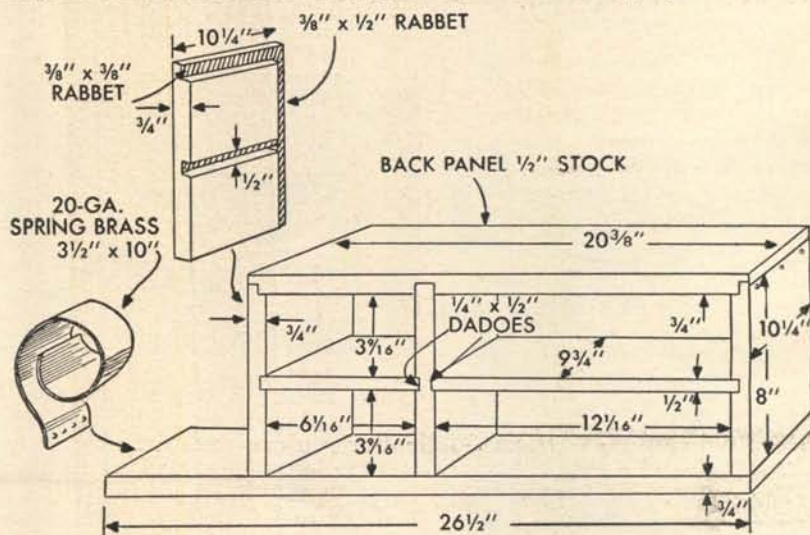
Neat and compact, this desk-top file cabinet has two drawers that will accept  $8\frac{1}{2}$  x 11-in. stationery or typing paper, the other two drawers hold standard 3 x 5-in. file cards. Even if a housekeeper has no desk of her own, she would appreciate having the cabinet in the kitchen on a counter or shelf, where she could file recipes on the cards, and write personal letters on the stationery. The file cabinet also would make a fine gift for friends who have trouble keeping a neat desk.

The original cabinet was made of solid ash. Any hardwood could be used, or hardwood-faced plywood. Note that the backs of the larger drawers have a cutout to permit easy removal of the sheets of paper. The smaller drawers are grooved vertically along the inside surfaces of the sides so dividers can be moved to accommodate the

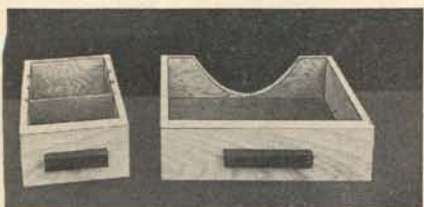
varying number of cards that would be used.

Space for a couple of books or ledgers is provided on the extension of the base. A piece of spring brass is coiled to make a "book end" that is fastened to the edge of the base. The pulls for the drawers are scraps

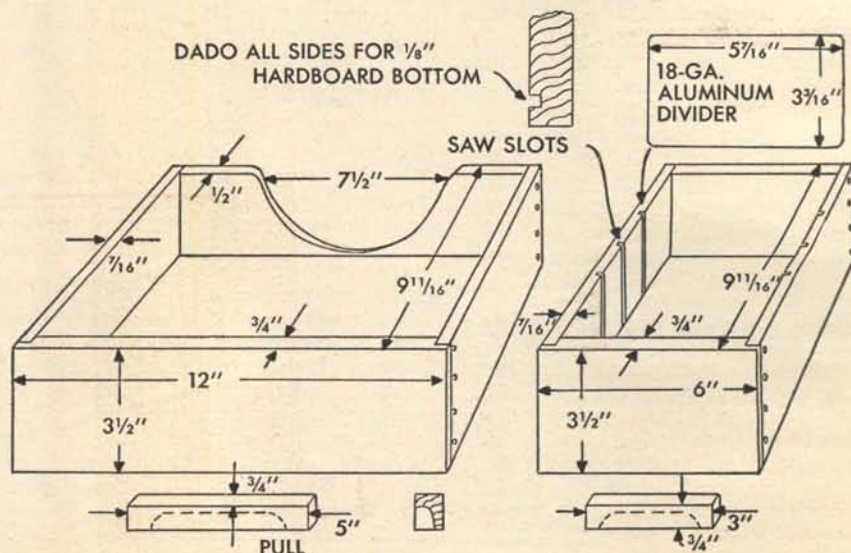
of hardwood. They can be finished in a contrasting color, as on the original, or they can be finished in the same way as the rest of the cabinet. Make the drawers small enough so they slide easily, and wax the lower edges of the sides to further assure easy operation.  $\Delta \Delta$



Top, bottom and partitions are dadoed and rabbeted to fit neatly and strongly together with aid of glue and screws.



Two drawers are designed to accept standard  $8\frac{1}{2}$  x 11-in. paper, two are for standard 3 x 5-in. file cards.





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